

# DOCUMENT RESUME

ED 159 141

SP 012 945

AUTHOR Lindauer, Ivo E., Ed.  
 TITLE The Doctor of Arts: A Conference Report.  
 INSTITUTION University of Northern Colorado, Greeley.  
 PUB DATE 78  
 NOTE 54p.; Report of a conference on Doctor of Arts Programs at the Univ. of Northern Colorado (Greeley, Colorado, November 1977) ; Parts may be marginally legible due to type size  
 AVAILABLE FROM Bureau of Research Services, University of Northern Colorado, Greeley, Colorado 80639 (\$1.50)  
 JOURNAL CIT Colorado Journal of Educational Research; v17 n3 Spr78  
 EDRS PRICE MF-\$0.83 HC-\$3.50 Plus Postage.  
 DESCRIPTORS \*College Teachers; Conference Reports; \*Doctoral Programs; \*Doctor of Arts Degrees; Employment Potential; \*Graduate Study; \*Higher Education; Teacher Education

## ABSTRACT

The rationale, history, strengths, and weaknesses of Doctor of Arts programs preparing students to become specialists in the education process both as theoreticians and as teaching practitioners were discussed at this conference. Formal presentations and workshops are reported as they were presented at the conference. Workshops and other sessions are summarized by those chairing the session, or by students who were assigned the task of summarizing a specific session. (JD)

\*\*\*\*\*  
 \* Reproductions supplied by EDRS are the best that can be made \*  
 \* from the original document. \*  
 \*\*\*\*\*

# Colorado Journal of Educational Research

ED159141

PERMISSION TO REPRODUCE THIS  
MATERIAL HAS BEEN GRANTED BY

*D. W. Chaloupka*  
*Editor*

TO THE EDUCATIONAL RESOURCES  
INFORMATION CENTER (ERIC) AND  
USERS OF THE ERIC SYSTEM.

U.S. DEPARTMENT OF HEALTH,  
EDUCATION & WELFARE  
NATIONAL INSTITUTE OF  
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED  
EXACTLY AS RECEIVED FROM THE PERSON  
OR ORGANIZATION ORIGINATING IT. POINTS  
OF VIEW OR OPINIONS STATED DO NOT  
NECESSARILY REPRESENT OFFICIAL  
NATIONAL INSTITUTE OF EDUCATION  
POSITION OR POLICY.

University of Northern Colorado

Greeley, Colorado

The Doctor of Arts: A Conference Report  
Guest Editor, Ivo E. Lindauer

Volume 17 Number 3

Spring 1978

# Colorado Journal of Educational Research

Presentations, workshops, panel discussions, philosophy, and history of the Doctor of Arts programs at the University of Northern Colorado, Greeley, Colorado November 10-11, 1977

Guest Editor, Ivo E. Lindauer, Department of Biological Sciences, University of Northern Colorado.

## EDITORIAL BOARD

Richard R. Bond  
President of the University

Bruce W. Broderius  
Dean, College of Education

Donald W. Chaloupka  
Executive Editor

Lois Kearns  
Director of Publications

William D. Popejoy  
Donald L. Holley  
Robert A. Montgomery  
Robert B. Sund

Marilyn Hammer, Secretary

The Colorado Journal of Educational Research is published quarterly by the Bureau of Research and the University of Northern Colorado Chapter of Phi Delta Kappa.

Subscription Rates: \$6 annual (four issues). Foreign \$6.60. Single Copy, \$1.50. University libraries may elect to enter into exchange programs in lieu of subscription rates. All checks should be made payable to the Colorado Journal of Educational Research. Correspondence should be directed to the Executive Editor.

Editorial Policies: The Colorado Journal of Educational Research is devoted to the support of the efforts of Colorado educators in research in all levels of education. Manuscripts are encouraged from Colorado teachers, administrators and graduate students. Manuscripts and inquiries should be directed to the Executive Editor.

Abstracted and indexed in *Exceptional Child Education Abstracts* and *Current Index to Journals in Education*.

Coordination and promotion of the University of Northern Colorado's Doctor of Arts programs has been done primarily by a committee whose membership is as follows:

Dr. John L. Dietz, Associate Professor of Geography  
Dr. Robert L. Heiny, Professor of Mathematics  
Dr. Roger A. Kovar, Associate Professor of Chemistry  
Dr. Robert W. Larson, Professor of History  
Dr. Ivo E. Lindauer, Professor of Botany and Chairman of D.A. Committee  
Dr. Donald M. Luketich, Professor of Education and Dean of School of Educational Change and Development  
Dr. James E. Miller, Director of the School of Music and Dean of the School of Performing and Visual Arts  
Dr. Arthur R. Reynolds, Professor of History and Dean of the Graduate School  
Dr. Robert O. Schulze, Professor of Sociology and Dean of the College of Arts and Sciences

## Foreward

*The primary role of the University of Northern Colorado in higher education has been to produce graduates who will enter the education field at all levels. At the doctoral level, a more sharply focused program has been maintained to prepare specialists in the education process both as theoreticians and as teaching practitioners.*

*In 1970, a number of Departments within the University of Northern Colorado adopted the Doctor of Arts Degree program format in an effort to meet the need for broadly-trained college and university teachers. Since the initiation of the program in 1970, 68 graduates have been awarded a D.A. degree and all of these graduates are presently employed (1977) within their major area of graduate preparation or in an allied field of education.*

*The D.A. degree format provides the candidate an opportunity for a thorough mastery of his or her discipline, how to effectively communicate the knowledge of that discipline, and also an experience in searching for new knowledge. While research is not as highly emphasized within the D.A. programs, as in Ph.D. programs the accomplishments of the D.A. students may well surpass those who are more thoroughly trained in research.*

*In November of 1973, the first D.A. Conference, jointly sponsored by the American Institute of Biological Sciences and the University of Northern Colorado, was held at the University of Northern Colorado. This conference was primarily designed around the needs and concerns of the UNC Biology Department. Information and new directions obtained from this conference provided faculty data needed to better advise candidates and to design a program that more effectively met student needs.*

*The November 1977 Conference was designed to bring to the University a national update of the status of the D.A. Degree and to provide an opportunity for on-campus D.A. candidates and faculty to exchange ideas with off-campus consultants. In addition, the conference was designed to look at the University of Northern Colorado's D.A. program in a variety of ways in an effort to improve the delivery and quality of its program.*

*This conference was jointly sponsored by the University of Northern Colorado Foundation, Inc. and the University of Northern Colorado.*

*Formal presentations and workshops have been reported as they were presented at the conference with only minor editing. Workshops and other sessions were summarized by those chairing the session, or by students who were assigned the task of summarizing a specific session. The conference adjourned for a short time to hear a special University Lecture by Ralph Nader and reconvened later that evening.*

*In reviewing the special presentations and comments presented throughout this document, one should keep in mind that the comments from the participants of the conference reflect their attitudes and philosophies which have been developed and established by their parent institutions.*

Ivo E. Lindauer  
Guest Editor

## TABLE OF CONTENTS

### The Doctor of Arts: A Conference Report

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>2 HISTORY AND UPDATE OF THE DOCTOR OF ARTS DEGREE AND PROGRAM <i>Dr. Mary Magdala Thompson, Loyola College</i></p> <p>7 PANEL OF EXPERIENCED DOCTOR OF ARTS GRADUATE TEACHERS <i>Dr. Steven L. Scott, University of Northern Colorado, Moderator</i></p> <p>8 EXPERIENCES WITH THE DOCTOR OF ARTS DEGREE; AND SOME PRESCRIPTIONS <i>Dr. Erwin R. Steinberg, Carnegie Mellon University</i></p> <p>16 THE DOCTOR OF ARTS DEGREE IN MATHEMATICS AT THE UNIVERSITY OF ILLINOIS AT CHICAGO CIRCLE <i>Dr. Irwin K. Feinstein, University of Illinois at Chicago Circle</i></p> <p>19 WORKSHOPS: UNIVERSITY OF NORTHERN COLORADO FACULTY PRESENTATIONS AND SUMMARIES</p> <p>19 Research in the Doctor of Arts Program, <i>Dr. Ronald K. Plakke, Department of Biological Sciences</i></p> <p>20 Education Component of the Doctor of Arts Degree <i>Dr. Ken Hogan, Department of Higher Education</i></p> <p>20 Supervised Doctoral Candidate Teaching in Biological Sciences <i>Dr. Edmund A. Richards, Department of Biological Sciences</i></p> <p>20 Problems and Issues Concerning the Doctor of Arts Program in Chemistry <i>Dr. Roger Kovar, Department of Chemistry</i></p> <p>21 New Methods of Teaching and Research Important to the Doctor of Arts Candidate <i>Dr. Robert Larson, Department of History</i></p> <p>21 Current Issues Concerning the Doctor of Arts in Music <i>Dr. Sanford Linscome, Department of Music</i></p> | <p>21 Spatial Decision Making: Role Playing, Simulation in Geographic Education <i>Dr. David Cole and Mr. George Huppert, Department of Geography</i></p> <p>22 PANEL DISCUSSION: CURRENT DOCTOR OF ARTS STUDENTS IN VARIOUS DISCIPLINES <i>Dr. Arthur Reynolds, Dean of the Graduate School, University of Northern Colorado, Moderator</i></p> <p>23 NEW TRENDS IN COMMUNICATING INFORMATION: <i>Dr. Ronald Camp, Director of Educational Materials Service; Dr. Harold Bowman, Chairman, Department of Educational Media; Dr. David Jelden, Department of Industrial Technology; University of Northern Colorado</i></p> <p>25 A SUMMARY OF THE PHILOSOPHY AND HISTORY OF THE DOCTOR OF ARTS DEGREE <i>Dr. Ivo E. Lindauer, University of Northern Colorado</i></p> <p>26 HISTORY AND PHILOSOPHY OF THE DOCTOR OF ARTS PROGRAMS AT THE UNIVERSITY OF NORTHERN COLORADO, INCLUDING GRADUATES, DISSERTATION TITLES, AND PRESENT EMPLOYMENT</p> <p>32 PROMOTING THE DOCTOR OF ARTS PROGRAM <i>Dr. James E. Miller, University of Northern Colorado</i></p> <p>32 FOSTERING INTERDEPARTMENTAL DOCTOR OF ARTS ACTIVITIES <i>Dr. Robert O. Schulze, University of Northern Colorado</i></p> <p>33 CONFERENCE PROGRAM</p> <p>35 DISSERTATION CAPSULES</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

# History and Update of the Doctor of Arts Degree and Program

Mary Magdala Thompson

On the tenth anniversary of the initiation of the Doctor of Arts Degree, it is appropriate that this Conference on the D.A. be sponsored by and offered at the University of Northern Colorado. A University with one of the oldest D.A. programs sharing second place in the number of D.A. degrees awarded to date (68) and currently enrolling the largest number of D.A. candidates (107), it has demonstrated a serious commitment to this special program designed for the preparation of college teachers. It is fitting as well that today's program should have as one of its speakers the man who is primarily responsible for the development of the first Doctor of Arts degree at Carnegie-Mellon University -- Dr. Erwin Steinberg.

It has been said that those who cannot perform a task, teach it, and those who cannot teach, administer it. I would like to suggest that those who cannot administer it, visit it. This has been my role in the Doctor of Arts. My task this morning as one who visits D.A. programs is to outline briefly the history of the Doctor of Arts degree and to review its present status.

Having at times mistakenly assumed that the D.A., once clarified as a Doctor of Arts, is then uniformly understood, I hasten to define, even to those engaged in offering this degree, my concept of what constitutes a D.A. The Doctor of Arts can be described as a post-master's degree specifically designed to prepare college teachers who are also scholars; admitting students who show evidence of potential, interest, and aptitude for college teaching; and offering as a major field a discipline broadly interpreted as spanning several related disciplines. Its dissertation is concerned with instructional or curricular problems in a teaching field and demonstrates mastery of academic content and ability to select, organize, present and evaluate content materials in undergraduate courses. Its relationship to research is the emphasis on skills and abilities needed to understand the role of research first in the particular discipline, relating it to the revision and updating of undergraduate courses and curricula, and second in pedagogy in order to develop and evaluate new instructional materials. Finally, the D.A. develops an understanding of the total environment

through which teaching, advising and committee service work out the problems involved in undergraduate education.

Having defined the degree I would like to review a little of its early history; share our 1973 and 1976 appraisals; and finally comment on its current status.

## As Early as 1935?

There is evidence that the Doctor of Arts degree had been proposed as an alternative to the Ph.D. as early as 1935 by the Mathematical Society.<sup>1</sup> In 1955, William DeVane, Dean of Yale, made a plea for a "not less rigorous but different degree specifically charged with the responsibility of preparing college teachers, emphasizing teaching effectiveness and breadth of knowledge."<sup>2</sup> "It is a pity", he said, "that we cannot invent a doctor's degree that will be satisfactory to the graduate schools, on the one side, and to the colleges, on the other." He explained, "The training designed for this degree should be directed toward preparing men and women to teach effectively in college. It should emphasize the breadth of the candidate's knowledge and the clarity of his understanding." He was promptly trounced by the other fourteen members of his Committee of Fifteen.

Again, in 1959 the same Dean (deans are known for their tenacity) exclaimed, "Oh, for a degree somewhere. . . of which the holder could be proud. . . proud of his own profession -- the teaching profession. . . conscious that he, too, has been through a rigorous program of preparation. . ."<sup>3</sup> To this, J. Peter Elder, Dean of Harvard, responded (I presume somewhat haughtily), "I do not like to see a third degree brought in, such as a doctor of arts, or something of *that sort*."<sup>4</sup> (emphasis mine). But persistent deans can sometimes predict, if not promote, change; and eight years later the Doctor of Arts degree was born at Carnegie-Mellon University. By 1970 in swift succession, moral and financial support developed; Jencks and Riesman pointed out the inappropriate aspects of the Ph.D.

degree for preparing college teachers, stating that no university would deny a competent scholar a Ph.D. and therefore a license to teach in spite of the fact that he or she were known to be a poor teacher;<sup>5</sup> The Council on Graduate Schools in the United States recommended the establishment of graduate programs leading to the degree of Doctor of Arts "to prepare graduate students for a lifetime of effective teaching at the college level";<sup>6</sup> E. Alden Dunham of the Carnegie Corporation of New York announced planning grants totaling \$939,000 to ten institutions for the new degree;<sup>7</sup> fififi fi fifififififi 'christening party' was planned in the form of a national conference on the new degree at Wingspread.<sup>8</sup>

At that meeting, Dr. Elliott from Northern Colorado pointed out this institution's 'unique situation' of being "authorized to offer the Doctor of Arts degree in seven areas."<sup>9</sup> At the same meeting, Dr. Steinberg of Carnegie-Mellon offered a model which he hoped would help to develop "a set of criteria and operational procedures more like abuilding code than a blueprint for a single structure."<sup>10</sup> During the next several years his objective was perused with such relentlessness that today there is scarcely a blueprint around and the building code has been used to create unbelievable variety.

For a short time all augured well until unexpected events cast a pall over the new and enthusiastic plans:

1. government and industry began to release numbers of Ph.D.'s who then flooded the college and university teaching market;
2. federal and foundation funding either ended or diminished;
3. several states declared moratoria on the development of new degrees;
4. undergraduate enrollments began to decline causing the release of faculty who then competed with new graduates of terminal degree programs; and
5. an increasing number of Ph.D.'s caused a surplus of terminal degree holders.

Still institutions which had inaugurated programs held on some because they had Carnegie grants, some in hopes of obtaining them, and others because they simply believed in the D.A. In 1973, Dr. Dunham, interested in the results of the Carnegie Corporation investment in the degree and in the future possibilities for its development, asked Dr. Paul Dressel of Michigan State University to assess the existing programs. I had the good fortune to visit, with him, and institutions offering the D.A. Either together or individually, we visited every operating Doctor of Arts program funded by the Carnegie Corporation: Ball State, Brown, Carnegie-Mellon, Claremont, Idaho State, Lehigh, SUNY at Albany, and the Universities of Michigan and Washington. We also visited six additional institutions with D.A. programs: Northern Colorado, Middle Tennessee, Ohio State, the Universities of Mississippi and Illinois at Chicago Circle, and Illinois State. The latter two were in the process of developing programs.

## Strengths and Weaknesses

At that time we found an assortment of strengths and weaknesses. Much as the statistician with his feet in the oven and his head in the freezer reports that on the whole the temperature is average, we reported that the D.A. was progressing -- progressing in a manner which justified reaffirmation

that it should be designated as *the* degree for preparing college teachers and was deserving of continued Carnegie support. Positive features identified on those first visits were:

1. Enthusiasm of many administrators, faculty and students and their determination to pay the price required to develop good programs;
2. Real concern for breadth of background rather than specialization;
3. Some good core programs related to non-cognitive aspects of teaching to develop an understanding of the student as a person;
4. A few good professional components acquainting students with aspects of higher education of real importance to the college instructor, i.e. curriculum development, the legislature and higher education, counseling, and the history of higher education;
5. Multiple D.A. programs on a single campus enabling the sharing of professional courses, seminars and informal discussions across disciplines; and
6. Serosus commitment to intern and/or extern experiences.

At the same time we found a number of problems:

1. In many cases there was a lack of leadership especially when the authority of the graduate dean was not strong or when programs had developed without top administrative support.
2. Institutions offering a single D.A. program suffered from the lack of shared professional courses and interdisciplinary richness.
3. Ph.D. programs, sometimes less prosperous than the D.A., attempted to stifle the D.A. by disparaging it to students and trying to lure them away from the program.
4. Overcompensation for feelings of inferiority led some institutions to construct the D.A. on lines identical to the Ph.D. or to superimpose on the D.A. additional requirements which led students to refer to it as a "super Ph.D."
5. Student concern over the future of the degree and employment possibilities caused uneasiness.
6. Meager financial support made hardships for students who had relinquished or taken leave from good teaching jobs.
7. Students who have had years of teaching experience were required to follow much the same programs as that of the student with no experience.
8. Internships were inadequate, if not totally lacking, or students were required to locate their own.
9. There was little integration of all of the components of the respective programs.
10. Some D.A. students seemed less able than Ph.D. students.

During the years from 1973-76, a few institutions were added to the list of those offering the D.A.; but the number of students increased *substantially*. When in 1976, the Carnegie Corporation financed a second series of visits, there were more opportunities to obtain student opinion. Second visits were made to most of the institutions seen earlier as well as to nearly all which had added programs by 1975-76. Those visited for the first time were: Catholic University, University of Miami, Simmons College, Drake University, and Atlanta University. This experience brought a stronger sense of the potential of the Doctor of Arts degree but at the same time verified some of the earlier concerns. One institution had dropped its program while others carried on the books programs which had either disintegrated, were in the process of disintegration, or had

never actually materialized. Encouragingly, a number of programs had strengthened their operations and new institutions offering the D.A. for the first time had profited vicariously from the early mistakes of already existing programs and demonstrated a vigor which promised even greater success. Some changes which were most apparent during the 1965-76 visits were:

1. Better overall institutional understanding of the objectives of the D.A. without competitive reference to the Ph.D. or contrived attempts to demonstrate that the D.A. is equal to or better than the Ph.D.
2. More unified admissions policies which tended to favor students who had teaching experience and a Master's degree, and for whom college teaching was an objective. There seemed to be a stronger desire to admit students on leave from teaching positions and thus avoid flooding the job market.
3. More financial help available, diminishing the hardship for students and allowing them to devote more time to the program without the earlier anxiety.
4. More responsibility accepted by institutions in helping to provide meaningful internship experiences.
5. Clearer understanding of the meaning of the dissertation and better attempts at making it the integrating force in the total program.
6. Greater acknowledgment of the need for students to know more about educational technology, the role of faculty, the history of higher education and the affective aspects of teaching.

There still were and are a number of institutions which have not yet, in spite of the building code, grasped the meaning of the D.A. nor corrected problems which tend toward disintegration. I will mention a few of the remaining problems:

1. Many institutions still do not recognize the need for having models of good undergraduate instruction before attempting to prepare college teachers. They need faculty who practice what they teach.
2. There is insufficient awareness of the need for all experiences in the D.A. program to relate to the improvement of the teaching-learning experience so that the courses, research and internships, all impinge on particular problems and contribute to their solution. An overall focus is needed to bring together all of the segments of the program and lead to a culminating experience. Rather than unity, many programs consist of disparate segments at times working at cross purposes.
3. There is too little understanding of the role of the dissertation as applied research bringing basic research findings to bear on the problems of teaching and learning in respective disciplines.
4. Teachers in D.A. programs are nearly all holders of the Ph.D. and therefore, at times, understandably biased in favor of the traditional doctoral program.

## Sharing Needed

Aside from these problems another need became more apparent -- that of providing or making possible more exchange among those offering the D.A. Faculty in many institutions wanted to share their methods and to be aware of what others were doing. Last year the Carnegie Corporation financed the compilation of a booklet *The Doctor of Arts: Policies, Programs, and Practices* which brought together some examples of ways in

which different institutions responded to problems and satisfied needs. I have brought a mini-set of those examples for you today.<sup>11</sup>

The first, *The Doctor of Arts: Make It New* by Michael Gosman of Catholic University, relates to some of the questions faculty have concerning the philosophical basis of the teaching degree. Dr. Gosman handles it in such a scholarly way that it cannot help but dispel some of the anxieties of discipline-oriented professors.

The second, *A Sequence Model for the Study of the Mathematics Education Modules* from Illinois State University, demonstrates the way in which in the area of mathematics the discipline and education can unite to the benefit of both.

The third answers the questions of many concerning the kind of professional studies which can be provided for D.A. students and the manner in which they can be made available according to the specific needs of students.

Last, we have a list of dissertations. This is a continuing area of interest as students cast about for some understanding of what it means to join research with a pedagogical problem. It is especially difficult for them when the institution does not see the dissertation as the integrating activity which from an early stage becomes part of the thinking of the student.

An assessment of progress of the degree would not be complete without some reference to the continuing antagonism on the part of some who look upon the D.A. as an unwanted challenger. In its brush with the terminal program, the D.A. can be said to suffer from *first degree* burns. The not unusual and somewhat understandable campus disdain for D.A. programs in a sense reinforces their worth given the educational tradition which Nyquist describes as, "praising with faint damns," or academe's attempt to leave no "good turn unstoned."

J. Boyd Page, President of the Council of Graduate Schools states that, "No innovation in graduate education in recent years has commanded as much attention as has the Doctor of Arts degree," bringing a promise to some, a threat to others, but "a newly built degree program specifically designed to meet a clearly felt need."<sup>12</sup> Some of the strongest advocates of the Doctor of Arts degree openly admit that they would prefer that the Ph.D. address itself to the preparation of college teachers and provide an appropriate program. The feelings of strong certainty (based on historical fact and current attitude) that this will not happen, intensifies the "Not number one -- D.A.'s Try Harder" attitude and may be responsible for the dogged determination which has contributed to its unusually rapid development in the educationally short span of 10 years.

C.P. Snow has said:

In a society like ours, academic patterns change more slowly than any others. In my lifetime, in England, they have crystallized rather than loosened. I used to think that it would be about as hard to change, say the Oxford and Cambridge scholarship examination as to conduct a major revolution. I now believe that I was over-optimistic.<sup>13</sup>

It is incredible, therefore, that in the short span of a decade from the 1967 introduction of the program at only one institution, Carnegie-Mellon, this new degree should have produced 481 graduates and currently enroll 740 students. In ten years one institution offering the D.A. has grown to 24. Since the first four graduates in 1968, numbers have increased to the following totals: 1970-12; 1972-27; 1975-416; 1977-481. In the last two years alone from Fall 1975-Fall 1977, sixty-five students have graduated and the number attending programs has increased by 184. This represents a 16 percent increase in

graduates and a 33 percent increase in candidates in two years.

Most numerous among the degree program disciplines in English with 12 programs which means that one-half of the institutions offering the D.A. have programs in English. Next in number is chemistry with nine programs; then history with eight and mathematics with seven programs. After this only five disciplines offered have more than one institutional program: economics (5); music (4); physics (3); biology (3) and government (3).

## A Status Report: Apathy Not Hostility

In spite of some continued ill-feeling toward the D.A. degree, the report, *Status of the Doctor of Arts Degree*, published by Dr. Robert Koenker,<sup>14</sup> Dean of the Graduate School at Ball State University, presents a picture less of hostility than of apathy and a failure to see a need for the program. Of the graduate deans responding to Dr. Koenker's inquiry, "What is your general assessment of the Doctor of Arts Degree?" those who responded favorably totaled 35 percent while those uncertain or unaware of a need were 52 percent and the actually unfavorable only 13 percent.

An assessment of the program's status must include the even more important issue of placement of its graduates. Koenker estimates that at least 90 percent of the D.A. degree graduates were placed, either returning to their former position or obtaining new positions. I suspect that, as I mentioned earlier, the increase in the number of institutions making part-time attendance possible to D.A. students is more responsible for the improvement of the employment picture than any change in the bleak placement predictions since this allows students either to retain, or later return to, full-time positions. If the introduction of more part-time terminal degree opportunities were the D.A.'s only contribution it would have justified its creation. Students benefitting from part-time study include a group which I found to be the most enthusiastic of all. They are the older or less affluent students who had long since given up with reluctance aspirations to earn a doctorate. Usually very experienced teachers, and thrilled at the opportunity, they serve as the leaven in the group -- the senior senators. Knowing what they want and need and able to evaluate the appropriateness of a requirement or offering, they can influence other students, encouraging them to "hang in" when the going is rough.

Of the fourteen institutions which have graduated enough students to compare their placement with those of their Ph.D. programs, six indicated to Koenker that the placement of D.A. degree graduates was better than other doctoral graduates and an additional four indicated that placement was somewhat better, was no problem, or was the same as other doctoral graduates. Only one institution claimed that the D.A. was more difficult to place. Even at the time of our 1973 study when I extended the survey into an appraisal of graduates and their placement -- even then when the program was very new and often unknown to employers -- graduates were experiencing no great hardship and some indicated that their special teaching expertise placed them in a most favorable position when competing with the typical specialized holder of a Ph.D.

Neither is an account complete without mention of the role of students themselves in the status of the D.A. Aware that graduates of the D.A. programs will be contributing their

thoughts directly later in this conference, I need do no more than to point out the significant role they have played and are playing in the history and development of the D.A. Having talked with over 200 students in the course of campus visits, I can say that the program's richest gifts are the committed students who time and again expressed their belief that it was their responsibility to convince the world of higher education that they were significantly better prepared for teaching than their Ph.D. counterparts. They were and continue to be an inspiration justifying the labors of so many faculty and administrators dedicated to this program.

In the words of one D.A. graduate to me:

Inaugurating a Doctor of Arts Program requires courage. Too many of our colleges and universities have lacked it.

Then she added trying to reconcile the great investment of time and energy:

The ultimate benefactors of the Doctor of Arts Program will be thousands of students.<sup>15</sup>

Finally, if there is strength in diversity, the D.A. is Herculean, for in its students, curricula, admissions policies, internships and research, it spans a broad range. Almost at the outset, the Carnegie Corporation grants stimulated this diversity as it included major research universities, regional universities and small colleges. Variety continues. There are institutions offering the D.A. in a single discipline; others in as many as twelve. Some programs prepare students for teaching in two-year colleges, four-year colleges, and high schools; while a few others prepare for non-teaching careers. Admissions is sometimes limited to applicants with Master's degrees; sometimes limited to those with only a baccalaureate. Some programs require teaching experience, others do not. The question of full-time or part-time attendance, internship and dissertation requirements, all are solved in a variety of ways. Internships are at the home institution, other institutions, short, or long. Dissertations are pure research, education-oriented, two in number, short papers or book-length thesis. And so the litany continues, making it difficult to characterize the operating Doctor of Arts save for the fact that it is not a Ph.D. degree and therefore shares both the advantages and disadvantages of this status, depending upon the critic.

If the critic is Clark Kerr, the image is a positive one, for his conclusion years ago and mine today is the same conclusion reached by many who have witnessed the impressive performance of D.A. graduates in the classroom that "The Doctor of Arts should become the standard degree for college teaching in the United States."<sup>16</sup>

## References

1. Arthur M. Eastman, (Ed), *Proceedings of the Wingspread Conference on the Doctor of Arts Degree*, October 25-27, 1970. (Washington, D.C.: Council of Graduate Schools in the United States, 1970), p. 1.
2. F.W. Strothmann, Committee of Fifteen, *The Graduate School Today and Tomorrow*. (New York: Fund for the Advancement of Education, 1955), p. 14.
3. Joseph Axelrod, *Graduate Study for Future College Teachers*. (Washington, D.C.: American Council on Education, 1959), p. 8.
4. Ibid, p. 12.
5. Christopher Jencks, and David Riesman, *The Academic Revolution*. (New York: Doubleday, 1968).
6. Council of Graduate Schools in the United States, "The Doctor of Arts Degree", (Washington, D.C.: March, 1970), p. 4.

7. Aiden E. Dunham, "Rx for Higher Education: The Doctor of Arts Degree," *The Journal of Higher Education*, Vol. XLI, No. 7. (October, 1970), p. 511.
8. Eastman, p. 1.
9. Eastman, p. 61.
10. Eastman, p. 4.
11. Mary Magdala Thompson, (Ed), *The Doctor of Arts: Policies, Programs, and Practices*, (November, 1976), (Mimeographed report).
12. Eastman, "Foreword".
13. C.P. Snow, "Miasma, Darkness, and Torpidity," *New Statesman*, (42:1587, (1961), p. 1587.
14. Robert H. Koenker, *Status of the Doctor of Arts Degree*, Ball State University, Muncie, Indiana, (February, 1976), (Mimeographed report).
15. Paul Dressel, and Mary Magdala Thompson, *College Teaching: Improvement by Degrees*, (Iowa City, Iowa: The American College Testing Program, 1974), p. 134.
16. Dunham, p. 510.

## Panel of Experienced Doctor of Arts Graduate Teachers (Those who have graduated with the D.A. Degree)

Moderator: Steven L. Scott

The first speaker, Dr. Greg Lyne from Eastern New Mexico University, listed as a strength of his departmental program the periodic reviews of candidates which occur. In addition, he mentioned that he gained confidence in his abilities as he worked on research projects. Lyne felt the comprehensives were useful in preparing him for the academic world although he was disappointed when the "outside" member of his committee showed up only for the defense of the dissertation. Lyne hopes changes can be made in this area.

Gale Nash from Gunnison's Western State College followed. He agreed with Lyne that research is an important aspect of a doctoral program and he too pointed out as a strength the fact that the comprehensive examinations are not treated lightly. His list of weaknesses was longer. According to Nash, a major weakness with his degree is that he feels qualified only to teach mathematics through the master's level because he is prepared in only a few areas. He said when he was looking for employment "doors were slammed in my face" because I had the D. A. degree. Elaborating on this point he said that once people are aware of what the degree is they not only accept it but in one case a person "did a 180-degree reversal in attitude" toward the D.A. degree.

The next speaker was Gene Hauck from Kelly Walsh High School in Wyoming. Of major importance to Hauck is the wide range of courses available during the summer session as this is important to teachers who want to broaden their backgrounds. He said he was pleased with the strong content emphasis of his degree because "this is especially important for one-man departments." As a weakness of his program he stated that there is a need for diagnostic testing so adequate preparation can be made for comprehensives. He too, felt that most people are not aware of what the D. A. degree is. In fact, he was told during a job interview that he could not be paid at a doctorate level because the school only had pigeon-hole categories on the pay scale for the Ed.D. or Ph.D.

Byron Augustin, Northwest Missouri State University, followed. With charm, wit, but still a serious note he emphasized the strengths of the D.A. program. He had obviously done

some homework before his speech as he had contacted the eight geography D.A.'s who have received their degrees from UNC. He related that on the whole, they were pleased with their degrees and the majority of these people are working for various universities across the United States. Of these, Augustin found one dissatisfied person whose main criticism was not with his preparation but with constantly having to explain that the D.A. degree is a doctoral degree. Augustin countered this criticism by stating that at the university he works for, the D.A. is obviously respected since he was recently promoted to associate professor although he did admit that he too is tired of explaining the degree to the uninformed. I enjoyed his comment that it is not so much what the degree is as what a person does with it.

He elaborated on other strengths of the degree such as the personal attention received from the Geography Department and having had an excellent advisor. He added that his UNC exposure to departmental field trips has prompted him to add this aspect to his own geography curriculum and as a result, enrollment in geography courses has increased rapidly.

The one weakness which he brought up had to do with participation in national conventions. Augustin feels departments should take a more active role in education conventions since this is a major part of the degree and not emphasize research-oriented conventions.

Dr. Arlyn Ristau from Wartburg College in Iowa, concluded the panel talks with a stress upon the importance of interactions between departments, which he felt is essential for communication.

In conclusion, most people felt that the degree is doing what it purports to do. They felt that as students they not only acquired knowledge about their subject matter but also learned how to become more effective teachers. The obvious handicap of the degree seems to be that not enough people know about it at this time. Collectively, the speakers were enthusiastic not only about the Doctor of Arts Program but also the quality of the education they received at UNC.--Summary by Loretta Elness.

## Experiences with the Doctor of Arts Degree; and Some Prescriptions

Erwin R. Steinberg

*(I have been asked by Professor Steinberg to make this introduction short and punch, so I'll try to do that. This morning the speaker addressed the background of the D.A. program, the development of the program. We at UNC, of course, have quite a stake in this type of degree. Our graduate programs to a large degree are tied to that, so we're quite interested in the future of the D.A. as a degree. And that's a suitable topic, I think, for discussion; to look at current issues in the D.A. Program; and some future prospects for it. Dr. Steinberg, of course, is well qualified to discuss this issue. He's been an active mover behind the D.A. program since its inception and is someone who's been very active in education and the business of communications for quite a long time. He's been Dean of the College of Humanities and Social Sciences at Carnegie-Mellon University. And so, without further ado, I will turn the floor over to Professor Steinberg)--Richard K. Ormrod.*

I'd like to talk about a variety of problems in the D.A. across the country as I've seen them. I ought to say first, however, that I don't think we ought to be apologetic about the fact that the D.A. has problems. We have been giving the D.A. for only about ten years, and it has problems; but the Ph.D. has been given in the United States for, what, about ten times ten years, and it has some very serious problems, too. So the fact that we stand up here and talk about the problems that the Doctor of Arts has, is, I think, to the credit of the people who offer the degree. It would behoove the people who offer the Ph.D. to get together a little more frequently and talk about the problems of the Ph.D. We have growing pains; we'll continue to have growing pains for at least another 10 or 15 or 20 years, I think; and even then it may well be that we'll see such a variety of Doctor of Arts degrees that there will not be any clear single pattern for the degree.

I'd like to start off with a premise this afternoon that is somewhat at variance with some of the things we've been hearing. (I don't know how carefully you listened to the full paragraph of analysis and definition that Dr. Thompson gave this morning. I'm glad to see that statement is going to be in print when the results of this conference are published.) People frequently say that the function of the Doctor of Arts degree is

to train teachers, college teachers. I think that's a serious mistake. The function of the Doctor of Arts degree is not, as I see it at least, to train individually good classroom teachers; that's a necessary, but not sufficient condition for a D.A. The function of the D.A. should be to train educational leaders in mathematics, in biology, in chemistry, in music, or whatever the individual discipline is in which the degree is being offered. I'd like to show you why I think that's a significant difference and how it affects every aspect of the Doctor of Arts degree.

Let me give you, first, an operational definition. Last year a group of about 20 people representing seven different campuses of the state colleges and universities in Illinois got together under the aegis of the Board of Higher Education of the State of Illinois and set up an evaluation program for the D.A. degree. The Board has authorized two campuses to give the Doctor of Arts degree. There are four Doctor of Arts degrees given at the University of Illinois, Chicago Circle, which also offers Ph.D.'s, and four Doctor of Arts degrees given at Illinois State University, which offers no Ph.D.'s. The authorization is for five years, at the end of which time there will be an evaluation to see whether those degrees should continue to be offered. In order to assure that the evaluation will be reasonable to the users, the institutions which are going to employ the D.A.'s, as well as to the institutions that offer the degree, the Board of Higher Education pulled together a group of 20 people from seven different campuses across the state, not just from the two campuses that offer the degree. Also on the committee were two people from the Commission of Scholars (a group of consultants who advise the Board of Higher Education on graduate degrees,) and three staff members from the Board. I'd like to read to you what the evaluation program that the group drafted says about the assessment of professional competence of D.A. graduates. This is how the State of Illinois is going to decide whether those eight D.A. programs are profitable.

1. What positions of leadership, recognition, or prominence have the graduates assumed because of their professional activity?

2. Do the graduates demonstrate that they are well prepared in their discipline?

3. Are the graduates highly regarded by the degree-granting institutions' faculty in terms of their teaching ability, scholarly ability, or other professional competency?

4. Are the employed graduates well regarded by their employing institutions?

5. Have the graduates' dissertations, theses, and other scholarly contributions been of high caliber?

6. Have the graduates been productive in their professional capacity?

NOTE: (5) and (6), specific examples may include: textbooks, articles, papers at meetings, syllabi and curricula, grants, awards, honors.

I think we sell the D.A. short if the only claim we make for the degree is that our graduates are going to go into their classrooms, close the doors, and be superb teachers. Of course, but that's not enough.

To train master teachers, it seems to me you can rely heavily on intuition. You can start with people who are reasonably good teachers, give them good background in their disciplines, teach them some seat-of-the-pants evaluation, encourage them to develop their personal teaching style and their classroom personality, and that's enough. If you want to train educational leaders in a discipline, then they have to have not only intuition, but know some science. And there is some science, there's a good bit of science as a matter of fact, if you take a look at what's known, not in the old traditional educational psychology, but in what we've come to call cognitive processes, for example. We know a good bit about how people learn at various stages, and much of it has been scientifically demonstrated. Educational leaders have to be able to read the literature. It's not enough to turn out someone who can go into the classroom today and be a good teacher. Eight years or ten years from now will she be able to pick up a journal article that tells about a significant experiment in teaching in her discipline, biology, or chemistry or whatever, and understand it? Will she be able to read the statistics, or will it be over her head? Will she say, "Well, I'm a master teacher. I don't need to know this stuff." Educational leaders have to be able to explain to others, to persuade others.

You've heard a lot today from the people who have earned D.A.'s about how the D.A. is regarded. But it's not only the teaching competence of the individual D.A. that is important. The ideas that the person with the D.A. brings to a campus are also important. What good is it if we train a D.A. to be a superb curriculum developer in geography or biology if that person goes to a campus and simply gets lost in a welter of Ph.D.'s who teach in a traditional way and doesn't make any impact on the curriculum? People who leave our programs ought to be able to set up and in some reasonable sense evaluate new programs. What I'm talking about for a D.A. program calls for an education about a subject, about teaching, about course development, about new methodologies and technologies, about the ability to relate one's discipline to other disciplines, and about evaluation. At this stage, of course, everyone should throw up his hands and say it's impossible. We can't do it all, but we have to do as much as we can.

I'd like to talk, therefore, about the give and take in various aspects of the programs and about my own personal experiences with the D.A., not because I think I have all the answer, or because I think that we at Carnegie-Mellon have all the answers, but because I'd like to show you the growing pains

and the anguish that we've been going through and probably will continue to go through for a good number of years in attempting just to formulate and understand the problems. I'm not sure that we know what all the problems are yet, but in continuing to examine and revise our program we have begun to see what some of them are and to work through toward some of the answers.

## A Major Problem: To Do It or Not

A major problem that it seems to me that a lot of universities don't face when they talk about the D.A. is that they haven't really decided whether they really want to do it. A couple of people in a department say, "Yes, we want to offer the D.A. degree," and the rest of the department says, "Well, if they want to do it, we'll go along," and they persuade the dean, and then the trouble begins. They write up the program and begin to offer it and the rest of the department says, "Well, the standards in that program aren't high enough." What they mean is, in effect, it doesn't look like a Ph.D. So then the battle begins and the students get caught right in the middle. It seems to me that if the faculty of a department or university say, "We're going to offer the Doctor of Arts degree," they ought to know what the needs of the students are, what the needs of the community are, what the D.A. means, and then sit down and make up a program to meet those needs. They shouldn't try to play the political game after the D.A. program has been approved by yielding enough to the traditionalists in the department or the college so that with a considerable amount of sufferance, they're allowed to continue to offer the D.A. degree.

I've been on campuses in the last year (I'm asked sometimes to help evaluate D.A. programs) where the students are really confused. I would say to them, "OK, now tell me the difference between the D.A. program that you're taking and a Ph.D. program you would take at X University down the road," and they can't tell me the difference. It seems to me that's very bad. We've got to look at what the needs are and meet those needs.

Someone was talking earlier today about the problem of having people from high schools in D.A. programs and saying D.A. degree ought really to prepare people for teaching at the college level. In our D.A. program, we take high school people, not a large number, for a variety of reasons. In the first place, some of our suburban high schools offer Advanced Placement programs: college-level courses in English, history, calculus, chemistry, and biology. As a matter of fact, some of the courses offered in those high schools are really more advanced than many courses one finds in community colleges. Furthermore, in many community colleges there is essentially a shallow array of courses, so that the curriculum development problems there are not so complicated in some ways, although the specific needs may be more difficult to meet. Laying out a four-year program in high-school English or in high-school history may well be a more complicated problem than laying out a curriculum in English or history in a community college because a suburban high school will offer the standard four years of English and history courses, perhaps a few special English and history courses, and Advanced Placement courses in American history and in European history (those last three are college-level courses.) A suburban high school may thus have, in effect, six or seven levels of English or history; many more than

in most community colleges. Secondly, we just don't want to say no to somebody who comes to us from high school and says, "Look, I would like to do more scholarship. I'd like to know more about curriculum development and about teaching. I may want to be a department head someday or I may not. I know what this degree is like. It will stretch my mind and give me the kind of experience and training I want." I don't think we should say no to those people. I think the more people we have like that teaching in the schools, the better.

## What Kind of Students?

Another important problem I see all across the country is how to accept students. We know how to do it in Ph.D. programs: you get the brightest, the smartest, the most bushy-tailed people right out of undergraduate programs and run them through your Ph.D. program. You can't do that with D.A.'s, however, because the people that you want frequently have been out in the field five, six, eight, or ten years. Someone who has been teaching for eight years in a community college isn't as bright-eyed and bushy-tailed as when he or she earned the B.A. or M.A. We ask our applicants to take graduate record exams. We ask for their undergraduate records. We ask for statements of experience. We ask for recommendations, not only from a person's undergraduate school or from graduate school if the person's been there, but recommendations from the place where the person has been teaching. But we still don't really know how to balance GRE's against experience. If a person's been out in the field for ten years, of course those GRE's aren't going to be as good as if he or she had come out of graduate school with the M.A. Or if a person took the direct graduate record exam ten years ago, what does that score mean now? So that we're still having a lot of trouble deciding how to accept people; we're still uneasy about it. The one thing I've discovered across the country is that because of this uneasiness, some schools aren't rejecting anybody. And that's very dangerous. If you have a program where everybody who applies is accepted, then there's something wrong. Now there are appropriate ways of hedging. Sometimes we'll say to a person, "Well, you know, we really can't tell whether you ought to be in this program. Come and take two courses, two summer courses if you prefer. We'll tell you at the end of two courses whether we'll accept you in the program." Not everybody likes that and not everybody accepts our challenge, but that's all right. We have to have some way of setting up standards.

I've said that a good many people who enter the D.A. programs are not like the typical Ph.D. candidates in the sense that many of them have been out in the field for a long time. While their interest in teaching and their teaching skills may be reasonably good, some of their other skills may be rusty. (I'll give you some examples of that in a minute.) It seems to me that one of the implications of what I've just said for the D.A. program is that we have to do more "hand-holding" than we do in Ph.D. programs. I had a student a year ago this fall who was an assistant instructor at a community college (I find that an odd title, but he doesn't have his master's degree so they won't make him an instructor.) He graduated about nine years ago from a reasonably good liberal arts school with a bachelor's in English and came to us with very good recommendations. Before we accepted him, we interviewed him. He was very

lively, had lots of ideas, lots of energy, his undergraduate record was good. He looked like a good candidate. He took his first graduate seminar from me and I discovered he couldn't read. He could read *The New York Times*, but I'm talking about the kind of close reading that a graduate course in literature requires. He may never have been taught that skill at the undergraduate level; and since he'd taken his B.A. he'd been dealing largely with remedial students for half a dozen years in a community college. He would read right over the top of the things we would discuss and it was quite clear that he wasn't getting the point.

Now, it wasn't that he wasn't bright; he didn't have the necessary skills--or had lost them. I spent hours with him. He would write a paper, spending I don't know how many hours on it then I would spend three hours on the paper and hand it back to him. The first time he got a paper back, he was in a state of shock. He couldn't believe that he couldn't read. But he came in for conferences. I made sure that when I handed him his paper, I talked to him. After a semester of this treatment, he signed up for a second semester with me. (He was a glutton for punishment; I was surprised to see him.) Suddenly in the second week of the second semester, he caught on to what it was we wanted and he began to do it. Now, I don't think that in the average Ph.D. program people are that aware of the individual problems of graduate students, I don't think that the typical Ph.D. candidate brings that kind of problem. If I were teaching in a Ph.D. program, the people in that course would be largely people right out of undergraduate school; they would come to me with recommendations from people that I know from the various colleges and graduate schools, they would be sharp and bright and quick and know all the latest critical techniques. I wouldn't have to worry about the kind of problem, and if a student couldn't read, he would probably fail the course and wash out of the program. It seems to me, therefore, that because of the nature of the D.A. student body, we have to be more careful in dealing with them.

But there's an obverse to that problem, too. At a certain point we've got to say, if a person hasn't performed at this point, we can't relax the standards to let him continue. One of the problems that I've seen across the country is that too often the percentages of A's that we give in D.A. courses is extravagant. In a particular department, for example, where I sampled folders there were 90 A's given, ten incompletes, no B's, and no C's. Another department gave 54 percent A's, 11 percent B's, 18 percent withdrawals, and 13 percent incompletes. When I talked to the faculty members, they sort of shuffled around and looked down, and then one of them said, "You know, some of these people are almost as old as I am; it's hard to give them a B, and how do you give them a C?" Well, look, you've got a population that's ragged coming in, uneven. You are not quite sure who they are and what they can do. You're being very "iffy" about letting them in and using all kinds of intuition. And you have to hold their hands at the beginning and be careful about how you deal with them. It's desperately important, therefore, that you set up some kind of filter to make sure that you don't let incompetent people get to the dissertation level, because then you know what happens. They get to the dissertation level; or they get to the orals level and they have invested all that time and all that energy and all that money--and then you find that you've blackmailed yourselves into letting them continue. I've seen that happen. If we run into

trouble with the Ph.D. people, that's where it's going to happen. We will have ruined ourselves by blackmailing ourselves into allowing incompetent people to pass through by not holding standards high enough. The people in the D.A. programs who are very good are not going to cause us any problems. As a matter of fact, some of them are already blazing trails. It's that lower end that's going to get us into trouble if we're not careful.

## Four Aspects of the D.A. Program

Let me talk now about four aspects of the D.A. program itself. The disciplinary core (that is, the subject-matter core), the educational core, the internship, and the dissertation. It's a cliché by now to say that in the D.A. we're dealing with breadth rather than depth. I think that's true. In most D.A. programs, we make sure that people sample a variety of areas rather than going into one area in the depth that they do in a Ph.D. program. Another thing that we have to be concerned with in the D.A. subject-matter courses is that those of us who teach subject-matter courses ought to show the students how to reach out into other disciplines. In other words, we have to be more interdisciplinary in our teaching than people traditionally do in Ph.D. courses.

Let me just give you an example from my own experience. I was teaching a course last year in archetypal and mythic criticism in literature. In that course we examined Joseph Campbell's model of the myth—a model in the sense that people in the sciences and social sciences use a model, an abstraction, if you will. To that discussion I brought Piaget's cognitive model, Kohlberg's model of moral development, and Erikson's model of personal development, and we tried to relate those models to Campbell's mythic model and to different kinds of archetypes. We lined them up to see to what extent these were compatible and to what extent they weren't and what the similarities and differences meant. I did that because these D.A. students were taking a cognitive processes course in which they were dealing with Piaget and Kohlberg and it seemed to me that it was important that I help them build the bridge to some of the other courses they were taking. I don't know that in our D.A. programs we do that as much as we should. We like to say that the D.A. is an interdisciplinary degree, but what does that mean? It isn't interdisciplinary to have students take a course here and a course there in different subjects and then say that the students are now interdisciplinary. We have to help make them interdisciplinary.

Another thing that I think we have to do in our subject-matter courses, without turning them into education courses, is to recognize the fact that people in these courses are taking the degree because they're interested in teaching and in course and curriculum development. I think that from time to time one ought to stop in a particular subject-matter course and say, "Well, now suppose we were dealing with this particular topic (whatever it is - the westward movement in the United States, or the novels of James Joyce) at the community college. Should you teach it in community college, in high school? How do you teach it in community college, in high school?" That doesn't make the subject-matter course an education course. You're still dealing with the discipline, but what you're doing is

taking a few minutes out once a week to recognize that the people you're teaching are concerned about the subject-matter for two reasons: first, for intellectual reasons; and second, because they're interested in teaching. In a variety of ways you can help those students to understand that the courses that they're in reach out to the educational courses they're taking, to the courses in other disciplines they're taking, to the needs that they're seeing in the schools where they're teaching. We must do that in the subject-matter courses. It seems to me shameful to put people in the educational core courses and say, "Well, that's their problem over there; let them worry about the teaching side of this degree or the curriculum development side of this degree. That's not my problem. I'm a Ph.D. and a scholar, and those people over there are trained to deal with teaching." If we Ph.D.'s teaching in D.A. programs are not interested in the teaching of our discipline and helping the students in the D.A. program understand the problems of teaching in our discipline, we've got no business offering the D.A. degree. So much for the subject-matter core. I haven't exhausted the problems by any means; but I'm running out of time.

At Carnegie-Mellon, we've had to work very hard at the educational core for a variety of reasons that are peculiar to us. In the first place, we have neither a school nor a department of education, so we didn't have many people to help us. In the second place, our psychology department is one of the top three or four departments in the country for research in cognitive processes. So since we have some of the best cognitive psychologists in the country, we went to them and we asked them for a course in cognitive processes. And for six or eight years we limped along with that course. The problem is that most of our cognitive psychologists do research in certain special ways. Either they work with three, four, or five year-olds (and many of our graduate students don't see the relationship between the results of that research and their own needs in teaching 19 and 20 year-olds) or they do computer simulations. The result was that our students split right down the middle over the course. Some of them saw the relevance of it, were really intrigued and worked hard and loved it. The others were left absolutely cold. They went through the motions and passed the course but they didn't understand that it had anything to do with what they were teaching or their needs as faculty members in community colleges or four-year colleges.

Finally in 1976-77 a member of the history department and I designed two new courses. I put together a course in cognitive processes by talking to people in the psychology department and getting about six or seven of them to come in and give lectures. We enrolled a group of D.A. candidates and then we inveigled about eight faculty members from various subject-matter disciplines who were giving the D.A. to take the course with us. The psychology people came in one at a time to lecture for a couple of hours and then we would ask them questions. At the next class session we would sit without the psychologists and discuss the relevance of what we'd heard, how one applied those concepts, those research findings, to the needs of people teaching art, or music, or chemistry, or English, or history. That worked reasonably well, but there were some problems with it. The psychology people didn't like it: they didn't like coming in one at a time and simply giving a lecture; they felt they didn't have any hold on the program. The graduate students complained that the subject-matter faculty talked so much they couldn't get an oar in. It was, in fact, wonderful for

the faculty, but I think it was good for the graduate students, too. But it was just an awkward situation. The next year the psychology department said, "Look, we have three or four courses that stem from our interest in cognitive processes. Why don't you let your students take their choices?" We tried that for a year, but that didn't work either.

At the same time we were developing the cognitive processes course, we developed a course in curriculum development that the faculty member from our history department gave. Again the graduate students and the subject-matter people took the course together. That was a fascinating experience because many of us in the subject-matter departments who took the course went off to our offices and sneered at it. We read a little book that Ralph Tyler wrote on curriculum development in 1946, for example, which said things that seemed very obvious; but then we began talking to our graduate students who had been teaching for three, or four, or five, or six years in a variety of community colleges across the country, and they said "Gee, this is great, wonderful stuff! It's exactly what we've needed all these years in developing courses and developing programs. We never had a model. We never had a set of criteria." We stopped sneering. That course is still being given by Barry Beyer, the historian, who has a Ph.D. in history from Rochester. This year the graduate students continue to be enthusiastic about the course and we're helping Barry teach it. I was in just before I got on the plane on Wednesday to talk with the students about what you do, whether you're an art teacher, or a history teacher, or an English teacher, with papers. How do you assign papers; how do you deal with them; how do you recognize problems? So not only do we build bridges from the subject-matter courses to the educational core courses, but we go into the educational core courses and help build bridges back the other way.

At Carnegie-Mellon, we started off with only six hours of educational core. After many bloody battles we have moved to fourteen hours of educational core. And there are no Ed.D.'s on our faculty, if you please, we're all Ph.D.'s. But we moved, from six to 14 hours, at the cost of subject-matter courses. We have that course in curriculum development that I was telling you about, which is four semester hours. We have a four-hour course in research in teaching given by a person who is one of our own D.A.'s, whom we're going to tenure this year because he's met university research requirements. He starts with the models of cognitive processes taught by our psychology department and then he builds from them a series of alternative teaching strategies, different kinds of teaching strategies: one-to-one instruction, small group instruction, lecture, programmed instruction--taking a look at each one in terms of the basic cognitive processes and what the research says about them. That's eight hours.

We have a two-hour course in organizational behaviour because we have turned out enough students with bright ideas who walk into a system--a college or whatever--with its own inertia and break their skulls against that inertia trying to do something with the curriculum. This is a course taught by a sociologist on how you innovate in an on-going system. I don't know if it's going to work; it's being offered for the first time this semester. But we feel we have to do something to help our D.A. candidates who get into new situations try to move them.

Finally, there is a two-hour course in quantitative methods, and a two-hour course in evaluation. I have been embarrassed

at the dissertations that some of our students have written. They think up a bright course or a curriculum and they teach it and they wrap it up and that's a dissertation. How the devil do they know whether it's any good? That's where we're going to get into trouble with our Ph.D. colleagues, too. We have to teach our people some sense of evaluation. It doesn't have to be as heavily statistical education. But if students turn out a course or a curriculum for a dissertation, they ought to try it and there ought to be, it seems to me, some reasonable kind of evaluation of it. We're going to have to help them get started on that.

Let me add quickly a few things, because I've already run over time. If you start off with my premise that the D.A. degree is to train educational leaders and not just classroom teachers, then the internship should not be just a student teaching experience. It seems to me shameful to take a D.A. candidate who's been teaching for three years, and as one university I know says, "Go back to your school and do another semester of teaching or come to our campus and do another semester of teaching and we won't ask any more of you." We have teaching assistantships at Carnegie-Mellon for our students. I am working with a group of four students now who are teaching freshman composition. But that's not their internship. Their internship is working with me developing the course while they teach it. Over the summer, I send them a philosophy and an outline of the first three weeks of the course, then in the seminar we develop, and in the classroom we teach, three week units. Their internship is not teaching. Their internship is developing the course that we teach together. In the internship, we use the concepts from the curriculum seminar that they're taking concurrently. The paper that they submit at the end of the semester is a revision of the course based on the principles and criteria that they have been learning in Barry Beyer's curriculum development course.

Another quick example. A year and a half ago, I was asked to develop a new course on modernism in literature and the visual and performing arts. A D.A. candidate from English and a D.A. candidate from the art department and I sat down together/developed that course. We talked first about what kind of students we were going to enroll, whether it was going to be a course for majors in literature and the arts, or a general education course. Then we put the course together, and then we taught it together. Yes, it was a student teaching experience, but that's not all it was: it was also a curriculum development experience. It seems to me that that's what internship ought to be.

The dissertation, again, it seems to me, ought to be the same combination of scholarship and curriculum development as the internship I just described. The internship and the dissertation are the two best opportunities that we have of bringing together two major strands of the Doctor of Arts degree--the subject-matter (i.e., the discipline) and the educational core. I think, as I explained, we ought to try to bring them together as we're giving them; but, the crowning opportunities to bring them together as a demonstration of the student's ability to do it--not just to learn about it, but to do it--are the internship and the dissertation.

To conclude let me bring us back to where I started. The D.A. degree, as I see it, ought to turn out *educational leaders* in biology, in history, in mathematics. . . .; not simply good teachers of biology, history, and mathematics who are going to go into their classrooms and close their doors.

## Question and Answer Session

Editorial Note -- The following are questions (Q) and answers (A) which followed Dr. Steinberg's formal presentation.

Q: You remind me of some of those bureaucrats from Washington, D.C. I think some of your ideas are great and some are lousy. First of all, leadership: you're talking about this educational leader and so forth; that's a beautiful concept, but not everyone's a leader. I don't care if you take a million courses; that doesn't mean you're going to be a leader.

A: Not all the Ph.D.'s we train turn out to be a scholar, either. That's true. In my field, one Ph.D. out of four publishes more than one article after he gets his degree. Are you going to use that as an argument to get rid of Ph.D.? (No.) Does the Bill of Rights in the Constitution really guarantee all those rights to everybody - No. Does that mean we should do away with the Bill of Rights? I realize I'm talking ideals, but that's what we have to shoot at.

Q: You know you talk about these processes and evaluations courses. We have right now a method of evaluating instructors that does not work.

A: Look, you're talking about popularity polls. I'm not talking about that. I'm talking about evaluating student performance. I'm not talking about evaluating whether the students like the professor. There are methods for evaluating how 30 students do after a semester. That's evaluation.

Q: O.K., you noticed in the Chronicle that the entrance exams scores are lower than they used to be.

A: Well, what does that prove? All it may prove is that the high school teachers need more training. (O.K.) So? Sure they're low. All it may prove is that we'll have to cut the TV time of public school students in half. Did you take a look at what the College Board study said, that the kids are spending so much time looking at TV that they're not reading enough?

Q: Well, my point is this -- those education courses or that sociology experiment, I think it's time to try this thing, but again, I hear a bureaucrat.

A: Look, in every Ph.D. we require research seminars. O.K. I repeat, one out of four Ph.D.'s publishes more than one article after he graduates. That means, according to you, those research seminars don't work. By your logic, let's cut them out. I'm sorry, you've got to try. My sense is that we're doing better than one out of four in training educational leaders with a D.A. As I look at our people, in my field at least, they're talking at national meetings of the National Council of Teachers of English, of the Conference on College Composition and Communication. They're publishing articles in various journals. Now the numbers of people we graduated in English are not large enough to be significant, and it'll be another ten years before we can get some statistical evaluation, but I think that the courses that we're giving, that I described, are doing a better job of training educational leaders than the research seminars in Ph.D. programs are doing training scholars. You watch.

Q: I'm an Ed.D. in drama. I don't know why I'm here except that I'm really interested in the degrees and so the question I would like to ask is, the way you outline the D.A. program, how does it differ from the Ed.D.?

A: The D.A. is subject-matter oriented. It's given by the subject-matter department. The largest percentage of courses is in the discipline. In a D.A. program of, typically, 40 to 42 hours of course work, not including the dissertation, anywhere from 24 to 26 hours are in the subject matter. That's not true of the Ed.D., which requires much more study in education.

Q: I, personally, would like to applaud the ideas that have been presented. Having received a D.A. and been out testing it out for four years now, it struck me that once I got out into the world of teaching that one of the things we hadn't addressed in the D.A. program I was involved in was the very thing that we're dealing with, that's learning. It seems that everything we address in this whole idea of incorporating a lot of content and subject-matter in a discipline is great, but we didn't really address what's occurring in the student. Now, we equate our performance with how we feel about teaching, and we don't know a damn thing about learning. The only way we can really learn about learning, I think, is to get into a meaningful educational component. I think they really need it strongly in many of the D.A. programs and I applaud the kind that do. I think that this is one area that we really need to look at in the D.A. programs. To be educational leaders, we have to know how the process that we're dealing with throughout the rest of our lives really occurs.

A: Fine, and let me just say as a person in a discipline where we tend to sneer at education courses, I don't honestly believe that people who teach education courses, by and large, necessarily know less than people who teach English or history or whatever. Sure, there are bad education courses, but I would challenge any one of you to stand up and tell me that there are not bad courses in your discipline. If there are poor education courses on your campus, just find out what the good ones are and get the students in those. Or better yet, ask the students. They'll tell you what the good ones are. Then make sure the rest of your student's get into those good ones. I was talking to someone here about an institution that offers the D.A. He didn't know that I had been on that campus and he was saying, "Well, you know their problem is that they have a School of Education and there are all these terrible courses." Yes, there are some poor education courses, but the graduate students in the disciplinary departments -- the D.A. candidates -- told me about three faculty members in that School of Education who were superb. Now I came in from the outside, and I discovered that fact in 45 minutes. Why didn't the people on the campus know, the people in English, history, you name it, music or whatever the D.A. degree's in? I think that's a dodge, our sneering at people who give education courses. They can turn and sneer at us. You know in which courses in your department the students fall asleep.

Q: You mentioned you were very concerned about the students you accepted into your program and I guess it didn't bother me as long as they were thoroughly screened before they got out of the program. Then you went on and mentioned that 90 percent were getting A's and I saw your concern. That's not my program, by the way, but nevertheless, we're giving too many A's, too. (Are these people in D.A. courses alone, or are they also in the Ph.D.?)

A: No, they're in D.A. courses. Let me see, the three campuses where I've seen this happening, their people were

only in D.A. courses. We faced one the other day -- at my place. Our graduate committee met four times for an hour and a half about whether to let a particular person on to the dissertation stage. It was horrendous, and it was, in a sense, because we had misled the student. We had given her grades that were too high. She was very vocal and quite good in class, but her writing was weak. I had improved considerably over the time she was with us, but not to the point that some of us felt that she should do a dissertation. And we're still hung up on that problem. We let her go through all the course work, without any C's, and when we said to her at the end, "We really don't think you ought to go on," she pulled out the record and said, "Look." What do you do?

Q: It seems to me that both sides of the issue are being presented here. You've both raised an important aspect of the D.A. program. With your quotes that only 25 percent of Ph.D. graduates publishes one or more articles, I think you've essentially hit the nail on the head from the stand-point that the Ph.D. degree is a research-oriented degree, and yet most of the people with that degree go into college or university teaching and if they happen to end up at the kind of institution in which I am located -- a major state teacher university they're not going to have time to do a great deal of research. So it seems to me that what we have to do is sell to the administration the fact that the D.A. is really preparing people that are better teachers to work in that type of university setting. I don't think we ought to be out selling the idea that all our D.A. candidates ought to be at the University of Michigan or Ohio State or West Point.

A: Furthermore, what's going to sell D.A. graduates is how they perform. You know, five years after you've earned your Ph.D., if you apply for a job somewhere, nobody is going to ask you what your dissertation topic was and what grades you got; they'll look at your professional record. And that's exactly what's happening now with our D.A.'s who've been out four and five years. They're getting new jobs on their records; they're not getting jobs on the basis of whether they have a D.A. or a Ph.D. First jobs, yes; it's frequently hard for D.A.'s to get jobs, although in some areas, as somebody said, community colleges, for example, it's frequently hard for D.A.'s to get jobs, although in some areas, as somebody said, community colleges, for example, it's frequently easier for a D.A. to get a job than it is for a Ph.D. for the reason that we heard. Ph.D.'s are trained, as somebody said, to teach 17th-century poetry and, if necessary, 17th-century prose. That's fine, but what do you do with somebody like that in the mine fields of the community college?

Q: Could you expand a little bit on the idea of research done in the D.A. program? You mentioned earlier a sub-counter for this kind of area; would you help me into seeing what you've seen in Doctor of Education type research, Ph.D. research -- or the two extremes -- and where that puts us. Are you talking about dissertation? No, I'm talking about the research that was.

A: Well, in a subject-matter course, I expect the students to do just about the same kind of research for papers in D.A. courses that they would do if they were taking courses for the Ph.D. In the course that I gave in archetypal and mythic criticism, we did exactly what I would do in a Ph.D. course and I had the students write exactly the same kind of papers. I would spend, as I said, maybe half

an hour a week on the teaching aspects of the subject, but I would expect the students to do the regular kind of scholarly things. As a matter of fact, I have gotten papers that are good enough so that I have written on them, "Look, if you do this, this, and this, and rewrite, I would suggest you send it off to such and such a journal." They haven't done that yet because they're still busy getting the degree, but I've got copies of those papers and I'm not going to let them forget. I've got a long memory. So that in the subject-matter courses, I don't see any difference.

Q: What about the overall research as related to the D.A. program?

A: Dissertations? (Yes.) We have three kinds of dissertations at Carnegie-Mellon. The most frequent one is a course or curriculum development. Such a dissertation has to demonstrate scholarly competence in the subject matter, it has to demonstrate an awareness of the needs of the particular student body at which it's aimed, it has to employ appropriate teaching strategies. It has to be tried and it has to be in some way evaluated, perhaps by a panel, or perhaps by a comparison of papers from one course and other course -- but there has to be some reasonable attempt at evaluation. I had one student who really did a very formidable statistical analysis, with computers and so on -- but that's an extreme. I don't expect that. I expect a D.A. dissertation, though, to do many of the same kinds of things that a Ph.D. dissertation does: raise and answer some questions, make some suggestions, raise further problems for further research. Some of our students, in English and history, for example, do a more traditional dissertation, the second kind of dissertation; but they have to include a significant chapter on how what they have discovered will affect the teaching of that particular subject. Some of our students in history have been doing dissertations in urban history. For example, they've been using the archives and repositories in Pittsburgh to study the effect of the rivers on the growth of Pittsburgh. In their dissertations are chapters on how their findings should be used in the teaching of a course on 19th-century American history or Urban American history or something of the sort. And when we say it's a substantial chapter, we don't mean that it's four or five pages or even just ten pages. It's got to be a solid piece of work. The third kind of dissertation is more of a problem. In English we allow a creative writing dissertation, a volume of poems, for example, or a substantial piece of a novel. If any of you have that problem, I'll talk to you later. We are still learning how to deal with it.

Q: In English, specifically, I wonder, since your subject-matter courses are, as you say, pretty much the same as Ph.D. courses, requiring the same amount of knowledge, how do you feel about your D.A. graduates teaching at the graduate level?

A: We are about to tenure in history one of our own D.A.'s. He teaches in our D.A. program. I would not be at all unhappy about the principle. I am not unhappy about the principle of our D.A.'s teaching in a D.A. program or in a Ph.D. program. I would look at the person. I'm not happy about letting some Ph.D.'s teach in a Ph.D. program. I'd want to know how competent the person is. Some of our D.A.'s have published regular scholarly articles in regular scholarly journals. I'd want a demonst-

ration of competence, that's all. We promote people on our campus and I assume you do on your campus, as a result of their performance -- what they do. And if somebody comes in to me with a Ph.D. and doesn't demonstrate, even after having written the dissertation, that he can in fact do scholarly work, I'm not going to let him teach a graduate course. Why should I? Same thing with our D.A. people.

Q: *Now, do I understand that you distinguish between what the person himself can do and what the program prepared him to do?*

A: I always do that. I do that with doctors, too. (No, what I mean. . .) No, I'm quite serious. Just because a person has an M.D. doesn't mean that I'm going to go to him to cure my ills, I'm going to find out first if he's a good doctor. I'm not being facetious.

Q: *As the program exists at the moment, is the D.A. designed to prepare a candidate to teach at the graduate level?*

A: Our good D.A. graduates are competent to teach in graduate programs, yes. Now, look, perhaps not at Harvard and Yale, but in many good state universities. Harvard and Yale, in my field at least, do very special kinds of things in literature, and we do not help our students to do that. But in some of the state universities where the Ph.D. programs may be more general, for example, yes, I'm sure that there are some of our D.A. graduates who are going to blaze really interesting scholarly trails. Some of them may just go off in the scholarly direction and forget all about curriculum development. I don't know how they're going to develop. Some of them are quite competent to do that, but it's going to take another 15 or 20 years to see. Let's meet again in 1992 and examine the results.

# The Doctor of Arts Degree in Mathematics at the University of Illinois at Chicago Circle

I. K. Feinstein

The University of Illinois at Chicago Circle is a large, multi-purpose university of some 21,000 students, situated in the heart of the city of Chicago, at the confluence of three of the city's four main expressways and only a mile from the fourth. The expressways converge in the form of a circle. Hence the designation "Chicago Circle" in the University's title. It offers all the standard degree programs of a large state university and awards the Ph.D. in nine or ten disciplines and the D.A. in four areas. (To date, only the mathematics department has actually awarded the degree.) The University is dedicated to providing low-cost education of highest quality in all levels from entering freshmen through post-doctoral research.

The mathematics department consists of 80 full-time faculty members, plus 64 teaching assistants. Of the 80 members, 73 hold the Ph.D. In a few years the department will contain only Ph.D.'s. The graduate college has awarded 36 Ph.D.'s in math in the nine years we have been authorized to award the degree, and four D.A.'s over the past three to four years of the D.A. program.

During the years 1968 to 1971, Professor Joseph Landin, who was the head of the department, and I had a joint NSF grant designed to improve the teaching of junior-college mathematics. This grant and dissatisfaction with the department's attempts to prepare teachers for the "non-standard" or "non-traditional" students were the most important forces steering us in the direction of a D.A. program.

## Some Basic Assumptions

A Committee of members of the department were charged with the responsibility of making plans for a D.A. program. From the very start there were some assumptions we made about a desirable D.A. program.

1. It should contain much more than a specified number of hours of course work beyond the M.S. program. A thesis should be required, although at the time we were not certain what sort of a thesis would be acceptable. (The thesis remains a

source of disagreement among our faculty. A little later I will list the titles of some of the D.A. theses which have been approved and accepted.) Admission to the D.A. program should be relatively easy since it would be a new program, but admission to candidacy should be as careful and demanding as possible to insure the high quality of the degree.

2. The program of studies should contain some interdisciplinary features, such as a required year of physical science and elective course work in psychology, sociology, and professional courses later designated as D.A. courses.

3. A sequence of courses entitled "Seminars in Mathematics for D.A. Candidates" should be an integral part of the work because we subscribed to the notion that teaching mathematics involves much more than just knowing mathematics.

4. Although every candidate would take as many courses in graduate mathematics as the Ph.D., breadth in mathematics would be our goal.

5. A practicum would be required of every candidate so he/she could show how his/her teaching had been affected by our program of courses and experiences.

6. Within a reasonable time after starting the program, the candidate should pass the Masters Examination required of all Masters candidates and our Ph.D.'s in mathematics, and pass with the same high scores (A or B) as the Ph.D. candidate.

7. A preliminary examination would be a necessary part of the candidate's experience. Such an exam would assure us that the candidate had sufficient maturity in mathematics, and in the D.A. and mathematics education areas as well.

## Some Fears

An early fear of the committee of persons working on the new program was that the department would not support its own D.A. program. While it took about three years for departmental acceptance to become a reality, this fear dissipated as members of the department learned more about the program and its many features. (We change the composition of the

departmental D.A. committee yearly and often persons who see no reason for a D.A. program change their thinking as they serve on the committee.)

A second fear was the possibility that we were "producing students for a non-existent market." However, we had faith in a preliminary survey we had made in which we asked the community colleges in our area how they would receive our graduates. (At the time we made our plans for the new degree, we did not consider the nationwide acceptance of the program to be as important as the acceptance by schools in our immediate area.) We talked with heads of mathematics departments, presidents, deans, and persons who hire university talent, in an attempt to get their reactions to a D.A. program in Chicago. Most of the responses were favorable. We did not sample the four-year undergraduate institutions in our area, probably because we had none of their teachers in our NSF grant program.

A third fear was the degree itself. How would the academic community react to a doctorate other than the Ph.D.? One need only scan the professional journals to realize that a large segment of the professional community believes the D.A. degree is unnecessary. (I still have many colleagues who say, "I am a good teacher and a Ph.D. If the pursuit of a Ph.D. made me a scholar as well as a teacher, why do we need a program such as this?") What we have received is acceptance, not enthusiastic support.

A fourth fear which I had was a general fear that in departments which had both the Ph.D. and D.A. degrees, the D.A. would be treated as a second-class degree. In departments which had only the D.A. degree, the D.A. would be treated as if it were a Ph.D. (This fear became more a reality than any of the others.)

A fifth fear was that we were making our program so difficult that we would frighten away all possible candidates. Yet we reasoned that high standards would be necessary to ensure the academic validity and reputation needed for a new doctorate.

We were considerably buoyed up by the knowledge that Carnegie-Mellon had been offering such a program since 1968, and by our personal faith in the need for such a program. We firmly believed that university undergraduate teaching in particular, needed improvement and that our colleagues did not find their teaching as exciting and rewarding as their own research. This lack of preparation for college teaching, we felt, was at the root of much of the dissatisfaction on the campus today. While the quality of scholarship which characterizes the Ph.D. degree has made American scholarship second to none, we think it has proved to be counter-productive for the development of teaching ability.

We also believe that many students take the Ph.D. degree because it is the only advanced degree of quality available to them. Furthermore, universities hire Ph.D.'s for positions requiring teaching ability and breadth of knowledge because the only available talent is the Ph.D. pool. We were aware that the drop-out rate among graduate students in mathematics is far too high and that many Ph.D.'s never make a single creative contribution to the teaching of mathematics. So we accepted the hypothesis that a number of graduate students would prefer an advanced degree in mathematics which was designed to prepare them for college teaching. There was little doubt in our minds that, at present, instructional technology in American education is both poor in quality and low in quantity. We are limping and crawling along at the textbook and blackboard

stage of communication. Media have entered the educational scene via the back door and operate in relative isolation from daily classroom instruction. Instructional technology must be seen as an organized totality for creating, implementing, and evaluating the process of learning, based on some of the newer results taken from research on human learning and the communication of ideas. Many conferences and commissions have been recommending the adoption of a degree such as the D.A. for many years, so the degree is not a brand new idea. If the advantages of the new media are to become a reality, universities must educate teaching personnel who will be able to create materials of instruction as well as these new technologies. Finally, our changing student body drove home to us the realization that every large city has its group of students who have traditionally been denied access to higher education. If these large, non-expert populations are to take advantage of the resources of a large metropolitan university, we must learn how to better increase the mathematical knowledge man has been accumulating. Furthermore, knowledge must also be communicated from one discipline to another. Thus we need persons who in their own areas of knowledge can put to use information collected by persons in other disciplines.

## No Illusions

We had no illusions about a D.A. degree program. We were convinced that the introduction of the D.A. program would not solve all of our problems, but at least the next generation of college teachers who passed through our hands would be aware of the educational dilemmas with which the present generation of college teachers has only recently begun to wrestle. The D.A. degree must be viewed as an effort to create an openness to innovation and change, as a challenge to traditional assumptions about curriculum content, and as an enquiry into methods of teaching mathematics and the very structure of the higher learning in America.

At the University of Illinois at Chicago Circle, the program for the Doctor of Arts in Mathematics is directed and supervised by the mathematics department. The curriculum consists of a wide variety of mathematics courses and includes study in the natural sciences, coupled with specialized training in instrumental technology. The candidate for this degree is expected to demonstrate broad competence in mathematics as contrasted with the more specific competence of the Ph.D. candidate. In addition there are courses, laboratory and field experiences designed to develop within the individual abilities as a teacher and educational communicator, including supervised lecturing and teaching, and courses in the art of communicating knowledge. Work in instructional design, the psychology and sociology of higher education and research methods in natural settings round out the program. Finally, the candidate must pass (A or B) the departmental Masters Exam required of all students who wish to work for a degree beyond the B.S.

These requirements may be lumped into six categories:

A. Sixty quarter hours of mathematics, including Math 332, 333, 355, 402, 430, and 431. In addition, the student must obtain at least four quarter hours of credit in each of any four of the following areas: computer science, differential equations, geometry, logic, probability, and statistics. The remaining 16 quarter hours will be selected by the student with the approval of the advisor. At least 32 of the 60 quarter hours must be taken

in courses at the 400<sup>th</sup> level.

B. Twelve quarter hours of graduate courses in a related science, such as physics, chemistry, biology, geology, physical geography, or another science with the approval of the department.

C. Twenty-four quarter hours of graduate courses in education and mathematics education directed toward the improvement of university and junior-college teaching.

D. A teaching practicum directed and supervised by members of the department for which eight quarter hours of credit will be awarded. Doctor of Arts candidates who have had teaching experience may request a proficiency examination to satisfy the teaching practicum requirement. A committee of members of the department will prepare and offer the examination. (The department expects to offer such an exam in rare instances.)

E. Eight quarter hours of electives restricted to mathematics or science. Courses in economics and statistical methods in psychology and education may, under certain circumstances, be selected in this category.

F. Thirty-two quarter hours will be devoted to the writing of a thesis, either an expository or historical treatment of a mathematics topic or a research report on mathematics education.

We regard this program as an innovative response to the changing mathematical needs of our society.

## Special Courses for the Doctor of Arts Degree

- DA 402 *Psycho-Sociological Factors in Post-Secondary Instruction* (4 hours)  
Psychological and sociological factors influencing the organization, the curriculum and instructional design of post-secondary educational institutions. Topics include: psychological and sociological concepts affecting curriculum and instructional decision. Prerequisites: Graduate standing.
- DA 404 *Instructional Design* (4 hours) Develops principles and practice of course development for graduate students who intend to teach and/or create course materials. Topics include: match between subject and student characteristics, use of different media and the integration of educational technology, role of tests, integration of elements. Prerequisites: Graduate standing.
- DA 406 *Instructional Technology* (4 hours) Training and laboratory work in computer assisted instruction and audiovisual instructional materials. Consideration of costs involved and problems of integrating instructional technology into the system in appropriate ways. Specific assignments relevant to the student's major disciplinary area. Prerequisites: Graduate standing.
- DA 408 *Research Methods in Natural Educational Settings* (4 hours) Recording, documenting, analyzing, and reporting evident of natural events related to education. Statistical design and inferential concepts and techniques. Methods for evaluation of instructional systems, materials, techniques students, and teachers. Relation of research to planning and implementing change. Prerequisites: Graduate standing.

How have our D.A.'s fared? Our first D.A. teaches at a community college about 40 miles from Chicago. His department head says that our D.A. is the best teacher of undergraduate mathematics he has ever seen. This first recipient of our D.A. degree is also president-elect of the Illinois Section of the Mathematical Association of America, an organization to

which most university professors belong. Thesis topic: *Algebraic Solution of the Fredholm Integral Equation with Degenerate Kernel*.

Our second D.A. teaches at a university in Indiana. He was one of eight persons hired on a temporary basis last year and was offered a permanent contract this year. He is an exceptional teacher and already getting the plaudits of his far more experienced colleagues. Thesis topic: *The Luneburg Theory of Binocular Vision and its Non-Euclidean Model*.

Our third D.A. teaches in a community college about 15 miles from downtown Chicago. He is also a gifted teacher and highly rated by his fellow teachers. Thesis topic: *The Mechanical Problem of Abel with Generalizations*.

Our fourth D.A. just recently received his degree and is still teaching courses for our own department. He has received some offers but has not chosen a position as yet. Thesis topic: *Infinitely Divisible Probability Distributions*.

The person who will be our fifth D.A. teaches in a four-year college in Chicago. He was hired on a temporary basis last year but was given a permanent position at the start of this academic year. He is a very effective teacher, rated excellent by his department head. Thesis topic: *Elliptic Functions and Integrals*.

There are about 25 other students who are at various points in the process of development toward the D.A. degree. We have never tried to make the program a mass program since it has been an experimental one and we do not have many faculty members sufficiently interested in the program to want to work in it. We anticipate that the five-year tentative approval given us by the Illinois State Board of Higher Education will be extended for another five-year period. We may be given the authority to offer the program on a regular basis. Support for the D.A. program continues to grow within the mathematics department, if not in the rest of the university. Yet this support of my colleagues for the D.A. program is of a condescending nature. Few of my colleagues would stop at trying to convince a bright D.A. that the Ph.D. is a better degree for him/her.

Several gnawing issues persist at the University of Illinois at Chicago Circle:

(1) Are we forcing Ph.D. requirements on D.A. candidates or have we satisfied ourselves with the legitimacy of the D.A. program on its own merits? (I believe it is the former.)

(2) Should the D.A. degree program be continued or should we go in the direction of a Ph.D. with a teaching emphasis? I would say it should be continued.

(3) Will the D.A. degree ever have the universal acceptance of the Ph.D., or are we perpetuating a cruel hoax on some very capable young persons? (The D.A. probably won't have the acceptance of the Ph.D. at least for another decade or two.)

(4) Have we been too demanding of our D.A. candidates or have we been facing the realities of university life? (I feel perfectly at ease on this issue. I think we have been realistic.)

(5) Does there exist a bona fide Doctor of Arts thesis in mathematics or shall we be forced to accept only watered-down Ph.D. theses? (I think D.A. theses exist. Limits, conic sections, . . .)

(6) Is it realistic to assert that our D.A. program is preparing persons who are experts in the teaching of mathematics when we are unable to get any consensus as to what constitutes good teaching of college mathematics? (I think the graduates of our D.A. program will answer this question.)

To paraphrase Shakespeare--the fault is not ours but in our stars.

## Workshops

### Research in the D.A. Program

Ronald Plakke

Is research a valid component of the D.A. program? Yes! We feel that there is no question as to its appropriateness for the Doctorate of Arts candidate. This individual will be called upon to understand the development of new knowledge, train students in effective methods of investigation and the proper use of experimental designs and controls, and supervise research projects. Although the Doctorate of Arts graduate may seldom be involved initially in graduate research programs, they will be called upon to supervise student research projects at all levels of the undergraduate program. Knowledge of research design may range from the simplistic projects often a component of introductory biology courses through often very sophisticated senior honors projects. The quality of these experiences often relate directly to the research experience of the instructor, experience that is not vicariously obtained.

We have gone through an evolution of thought in our department as to the type of dissertation topic that is appropriate and the depth of study that should be required for the Doctor of Arts Program. We have progressed from a philosophy that involved primarily pure research topics to expanded thinking that includes applied and pedagogical topics. Our change of philosophy came from the examination of the reasons we felt that a D.A. candidate should have research experience in a program primarily designed for teacher preparation. We came to the conclusion that it was experience with the research process that was our primary concern. Although we felt that dissertations should retain high quality of design, we felt that it was not necessary to go to the depth of study and degree of sophistication normally involved in a quality Ph.D. program to gain research experience. On the other hand, we are concerned that pedagogical topics be designed to meet the same performance criteria of design and interpretation as our pure research topics. We are very concerned that pedagogical dissertations in the D.A. program be directly applicable to the content area of the candidate. We attempt to insure that such dissertations do not degenerate into a "postage stamp" survey or curriculum development that are often associated with some of the Ed.D. dissertations pursued on our campus and other

campuses around the country. It was this type of pedagogical dissertation that initially made our faculty reluctant to encourage pedagogical studies. We realized, however, that the quality of any dissertation is directly related to the quality, ability, and experience of the advisory committee and department involved. Just as we recognize that there are many quality dissertations in the Ed.D. programs, we felt that we could control and design appropriate studies for the Doctorate of Arts following a pedagogical approach to the content area.

Although, we do not view the dissertation as the culminating experience in our D.A. program, we feel that the research experience must be of sufficient depth to develop the skills and techniques to give the candidate confidence and inspiration to continue scholarly work beyond graduation. If the candidate can define a problem, formulate a hypothesis and test that hypothesis with sufficient controls to allow interpretation of the results, we feel that the study is a valid D.A. research project. They have learned the skills necessary to continue work in pure applied and pedagogical studies. Our emphasis is not so much the type of problem, but the process involved in the study.

I think also, in a pragmatic sense, that research experience in the D.A. program may open future opportunities for the candidate in the area of research and graduate program involvement should the D.A.'s interest and ability turn in that direction. A parallel may be drawn here to the Ph.D. who ultimately may turn to teaching as his primary interest. Some experience in the classroom and breadth of training would certainly help those individuals.

We normally emphasize the recommendations of our candidates to function well at the undergraduate levels of the junior college or four-year college, but we also have reasonable confidence in the candidate's research capabilities should they pursue scholarly work on an independent basis or as an effective contributing member of a research team. Should they expand their research experience and prove themselves through publications, there is no reason why they should not move into instruction at the graduate level.

We believe that a quality undergraduate program is influenced by research experience of the instructional staff. I know of no quality undergraduate program in a four-year school that does not have instructors qualified by experience to administer, plan, or supervise quality individual projects at the undergraduate level, senior papers, or honor projects. I know personally of several senior projects that have challenged graduate studies in quality and complexity. This is not to say the graduate studies were inferior, but merely to point out the quality of some undergraduate projects. This type of student will challenge the abilities of the undergraduate professor in both the classroom and in the area of research. Instructors with no sound training in research design and research experience would be hard put to meet the challenge of students pursuing research projects. We must prepare the D.A. candidate to be effective in both the classroom and in research involvement.

Well, I've been restricted in time and find that I have exceeded it by one minute. I'll conclude my remarks as I'm most anxious to hear your remarks and responses.

## Education Component of the D.A. Degree

Ken Hogan, Department of Higher Education

In discussing any program that prepares college and university teachers, we should first be concerned with what the program contains that will make the graduate the best teacher we can produce, and our second concern should be that they can then get the best teaching position available.

I think that the people who conceived the Doctor of Arts program wanted to accomplish the above concepts and designed a recommended program to do so. In this program they recommend a professional or education component, and I would like to briefly discuss my concepts of this component.

I believe the education component is very important if the Doctor of Arts is to provide an outstanding teacher for the college classroom. This component should take nothing away from the content preparation of the program but should supplement it. The component should be tailored to the experiences and needs of each student, but I do believe that there should be some core courses that all take, as I don't believe a person always understands higher education just because they have been a student and teacher in a community college, college, or university.

Some of the opportunities for study in the education component might include: (1.) history and current status of higher education, (2.) curricular structure, (3.) teaching procedures and problems, (4.) nature and function of the community college, (5.) understanding the college student, and (6.) knowledge of the administrative, legal, and financial structure of higher education today.

These opportunities might be provided through established courses or special mini-courses designed specifically for the D.A. student.

If a campus has specialists in higher education, I strongly believe these people should be involved in the opportunities discussed above. These people are specialists in their fields just as the content area people are highly specialized in their content fields, and it seems economically inefficient for people

involved in highly complex content fields to even attempt to keep up in overall field of higher education. This statement doesn't imply that content field people shouldn't be involved in the education component as it relates to teaching their subject matter.

I also believe that a part of any educational experience is the opportunity to learn from fellow students, and in higher education courses at UNC this becomes a very exciting part of each course. Fall quarter there were 17 different majors involved in higher education classes.

## Supervised Doctoral Candidate Teaching in Biological Sciences

E. A. Richards

In the Department of Biological Sciences, the supervised teaching component of the Doctor of Arts Degree emphasizes the training of effective teachers rather than the production of skilled research scientists. It is recommended that the student have teaching experience prior to admission to the D.A. program, but one year of teaching experience is required before granting the degree. This experience may be gained from previous work experience, internships or teaching experience within the department.

To facilitate the supervised teaching, special courses, *Topics in Biological Science* and the *Laboratory in Biological Sciences* have been set up to accommodate the Doctor of Arts candidate.

The Doctor of Arts teaching component is supervised by the candidate's committee and encompasses the following areas:

1. The candidate selects the topic and after approval of the subject by the committee, develops the topic at least one quarter prior to conducting the course.
2. While teaching, the candidate is repeatedly video-taped and this tape is reviewed with the committee.
3. Encouragement is given to the doctoral student to experiment with various methods and styles of teaching.
4. The candidate is encouraged to use all forms of media in teaching.
5. At the end of the course, the candidate conducts a carefully prepared instructor-course evaluation which is reviewed by the committee.
6. Additional teaching experience may be arranged for the doctoral candidate if it is deemed necessary.

## Problems and Issues Concerning the Doctor of Arts Program in Chemistry

Roger Kovar

The nine chemistry people present discussed a "potpourri of current problems and their possible solution." Included among these were the general lack of acceptance of the D.A. Program, lack of finances to support D.A. activities, weakness of current professional area curriculum, the problem of evaluating curriculum development type dissertations, and weaknesses in the current teaching internship. Regarding the latter problem, students expressed a desire to teach a complete

course for part of their internship rather than just a portion of it.

Regarding the first problem, it was pointed out that the UNC Department of Chemistry has granted 70 percent of all chemistry D.A. degrees (to date there have been 14 nationally) and currently has nearly 50 percent of all chemistry D.A. students enrolled. Acceptance of the chemistry D.A. will not occur until there are sufficient numbers of quality D.A. graduates in the field.

It was pointed out that Willard Jones, Director of Grants and Contracts, might be able to help write chemistry D.A. proposals. The remaining problems have been directed to the chemistry graduate committee with recommended action. Currently, this committee is looking into the professional area of our D.A. curriculum, the teaching internship, and the problem of evaluation.

## New Methods of Teaching and Research in History Important to the Doctor of Arts Candidate

*Robert Larson*

At the Department Workshop on Problems and Issues of Various Disciplines, Dr. Stephen T. Powers, Chairman of the Department of History, and Dr. Robert W. Larson, also of that department, discussed New Methods of Teaching and Research in History Important to the Doctor of Arts Candidate, which was the title of the workshop. They considered such new methods of research and teaching in the discipline as oral interviews, quantitative history (Cliometrics), and psychohistory. They also discussed several of the new fields of history relevant to the Doctor of Arts candidates. These included family history, women's history, and minority history. New fields of activity in the discipline, such as historical preservation, were mentioned, too.

Most of the session, however, was devoted to ways of re-designing the program for D.A. candidates in history to better place them after their graduation.

## Current Issues Concerning the Doctor of Arts in Music

*Sanford A. Linscome*

Those attending the conference received input concerning the D.A. in Music on several occasions. Dr. Greg Lyne of Eastern New Mexico University spoke on the reception of the D.A. at both the University of Washington and Eastern New Mexico. Susan Cable of Metropolitan State College, Denver, evaluated the D.A. in Music both from the standpoint of the college teacher and student still in the program. Dr. James E. Miller, Dean of the College of Performing and Visual Arts, discussed various methods of promoting the D.A. in all disciplines.

The music workshop period was used to discuss the results of a questionnaire sent to all graduates and students of the D.A. program in music at UNC. The discussion and questionnaire results could be summarized by the following statements:

1. Most music administrators are not familiar enough with the D.A. to evaluate the degree against the Ph.D., D.M.A., or Ed.D.
2. Response is usually quite favorable once the D.A. graduate "educates" the administrator or colleague to the unique aspects of the D.A.
4. The D.A. graduates and students all seemed to be satisfied that the degree was answering their needs, though several felt that there should be more stress placed on the internship and stiffer entrance criteria.

## Spatial Decision Making: Role Playing, Simulation in Geographic Education

*David Cole and George Huppert*

The geography workshop of the D.A. Conference was devoted to a discussion of the use of experiential learning techniques in the teaching of undergraduate geography courses. Participants were introduced to a group problem-solving exercise concerned with the location of a manufacturing plant in a Latin American country. The simulated situation was explained, and discussion of how this kind of experience can be useful in college geography courses followed.

## Panel Discussion: Current Doctor of Arts Students in Various Disciplines

Moderator: Arthur Reynolds

The dominant theme presented by in-resident students was that the Doctor of Arts program should receive more attention and publicity.

Mark Parman, a doctoral candidate in chemistry, was the first to point to the lack of information on the program. It was apparent from listening to him that not only are departments oblivious to the Doctor of Arts program but employers as well. An excuse can be made for the various departments at the universities because they are geared to the Doctor of Philosophy. As for employers, there is absolutely no reason why they should not be aware of the qualifications of the Doctor of Arts graduate. It is Mark's opinion that the Doctor of Arts student should be prepared to make sacrifices in order to publicize the program.

Susan Cable is a music major who is completely satisfied with the program. She feels the faculty are very supportive and very interested in the students themselves. Teaching quality in the music department is also first-rate and compares favorably with Oberlin Conservatory. Susan also felt the Doctor of Arts program needed advertising because of the lack of knowledge of it.

The next student, Andrew Ferryman, from the History department likes the flexibility of the program. Students are able to branch out into related fields to be a more complete teacher. He does feel that the History department needs more methodology courses as there are only two taught at the present time. These two that are taught deal only with methodological studies or pure history research. There should be more choices in the scope of research than just these two.

Gary McCallister, in biology, provided some comic relief from the seriousness of the conference. He did mention five problems that he felt the biology department and perhaps the

others should attempt to rectify. The first is the coursework at UNC. This must be the strength of the Doctor of Arts program and it is not. Course choice is extremely limited and the choice outside of the major is even more limited.

Research and thesis defense are the second problem that must be improved. The choice of a research topic is flexible and that is good, but those on the thesis committee should be both knowledgeable and interested in the research topic of the candidate. These men should have a broad background in the life sciences in order to fairly appraise the work of the candidate.

Perhaps the biggest challenge is in evaluating a student teacher. Guidelines should be set with the possibility of being curriculum design oriented.

Examinations should be based on the ability to communicate and not on how much one knows.

The philosophy must change to one of acceptance of the Doctor of Arts program. Many professors on campus have no idea of what the program is all about or simply don't like it. Every department should have at least one Doctor of Arts professor on the staff because he will better understand the needs and problems of the candidate.

Barry Holecheck of the geography program offered the suggestion of publishing information in the AAC newsletter on the Doctor of Arts program. He also felt, and I agree, that the absence of physical geography courses is a severe problem at UNC and may be an inhibiting factor in students choosing to attend the institution. There is no hope of gaining an understanding of the total field of geography if courses in the sub-discipline areas are not offered.

The last student, Peggy Robinson, who is a mathematics major felt the program was also very good. She was satisfied with the flexibility and choice of courses offered. Summary by Mitch Barber.

## New Trends in Communicating Information

*Harold Bowman, Ronald Camp, and David Jelden*

Perhaps this session should have been titled "Trends in Communicating Information" for there has been little that is truly "new" in recent months either in the equipment area or in the field of educational communication.

What we would like to do is to consider briefly one of the recent educational trends "the concern for the student as an individual"; then, in somewhat greater detail, look at equipment on the market that is particularly suitable for accommodating the individual. Specifically, we will consider equipment in three areas: (1.) the second/picture viewers (Bowman); (2.) the video cassette (Camp); (3.) the mini-computer (Jelden).

In the past several years there has been a proliferation of projection viewers with sound. Unfortunately, as with the development of most A-V equipment, many of these units are not compatible. The picture materials are found in a variety of formats, 8mm, super eight, 16mm and single and double frame 35mm. The sound may be located on the film or on a separate tape, either cassette or standard 1/4 inch. Even where picture and sound formats are the same, the cartridge that houses them may vary so widely as to be non-interchangeable.

There are, fortunately, on the market two pieces of equipment that are largely standardized, the sound filmstrip viewer and the sound slide viewer. The choice between these is largely one of individual preference and the availability of materials. Sound filmstrips, while they may be locally produced, are generally obtained from commercial sources. The major disadvantage to the filmstrip is its somewhat fragile nature, it is more susceptible to scratching, tearing and other damage than are 2 x 2 slides. Sound slide sets, on the other hand, while available commercially are easily produced at the local level and are generally less subject to damage. (There are a number of good sound filmstrip and sound slide projectors available - see your local A-V dealer.)

The sound slide and film strip viewers are available in the \$300 to \$400 range making them the least expensive of the

equipment we will discuss today. However cost is, or should be, only one of several considerations that a person would make in selecting equipment appropriate to self instruction. The person choosing the equipment should also consider the question, "Is motion essential to the concept being presented?" If motion is essential then one can immediately drop from consideration the still picture/sound viewers just discussed and turn to the various sound/motion devices available on the market. Generally speaking, these would include the eight and sixteen motion picture films and video tapes.

Without going into detail regarding the "film versus video tape" debate we will simply state the consensus of most experts is that the 3/4" "U Matic" video cassette is the leader in the field for individual self-study. Briefly its advantages are: (1.) ease of operation and handling, (2.) standardized format, greater compatibility than 8mm, (3.) software somewhat less expensive per minute of operation, (4.) greater durability of software. It is true that the basic equipment needed; video camera, recorder, and monitor is more expensive than the minimum equipment needed for motion picture production and play back. However, when one considers all the costs of the two formats, keeping in mind that tape is less expensive, reusable, and has a longer life than film, the total cost differences tend to equalize.

The U Matic cassette, as compared to other video formats, has the advantage of ease of use and color at reasonable costs. All things considered, color is valuable in the classroom or laboratory. It is an attention getter but perhaps of greater importance is its ability to clarify the picture. Many situations in Art, Science and Medicine require colored pictures.

What about the equipment necessary for getting into a U-Matic video cassette program? There are several levels possible starting at approximately \$2,000.00:

1. The first and simplest level would consist of a cassette player, a color receiver and the necessary connecting hardware. Here one would be dependent on commercially prepared

materials. There is, however, an increasing amount of teaching materials available in this format. A number of producers are now making their films available in regular 16mm sound and U-Matic video cassettes.\*

2. For an additional six to eight hundred dollars a school could go to a cassette recorder/play back (\$1,900) and to a receiver/monitor (\$1,000). This unit is capable of copying programs off the air. While the new copyright law prevents unauthorized copying there is a great amount of copyright cleared material that may be copied either free or for a nominal fee. The Public Broadcast Service is one such source.

Either of the two packages described so far would be suitable for classroom laboratory self instructional purposes. In terms of teacher-student use there is the possibility of bypassing the recorder and using a camera and receiver for image magnification and/or transmission. Here cost would start around \$800 for a simple B & W set-up to approximately \$5,000 for a simple color system.

Beyond this, additional costs would be for additional equipment needed for a broader production capability and/or for higher quality standards in the materials produced.

The addition of the above mentioned camera to a video-recorder/player and receiver/monitor opens up additional possibilities for the local production of instructional materials. Perhaps one of the more viable uses of the camera, recorder, receiver combination is that of recording and playing back (observing) a series of activities for self-analysis. Coaches have for years recognized the value of recorded observations and, increasingly, the performance oriented courses are beginning to utilize this technique.

The remaining examples deal with improvement in quality of product. It is possible with the use of one camera and a good editing system to get acceptable quality and production flexibility. This equipment will cost approximately \$20,000.00. If or when additional cameras and the associated equipment are added the cost will go higher.

One more item that may be added to the production system is the recently developed flying-spot scanner for converting standard super 8 motion picture film to video tape without the use of a camera. And, of course, the costs go up. (The price of this unit is approximately \$1,500.00)

What about the future? Competition between the standard U-Matic cassette and several other audio-video sources will be increasing.

1. The Sony corporation has a smaller less expensive unit known as Beta-max on the market. Not only is the recorder/player less expensive but so are the tapes. One major problem, the Beta-max tape is not standard and can only be used on Sony Beta-max equipment.

2. Several other "odd" formats are at various stages of development and could affect the future of video use. Some of the most promising developments are Electronic Video Recording (EVR), and several formats of video disk. The intent of most video disk producers is for simple, dependable play back of pre-recorded materials at a reasonable cost. None of these products are designed for local production.

Finally we want to consider the third areas of concern, that of the mini-computer. Unfortunately, Dr. Jelden could not be

with us in person so his presentation is brought to you on video tape.

Perhaps a quick overview of the Industrial Arts Electronic program is in place. The classes in electricity and electronics at UNC are taught primarily on an instructor directed, self-instructional basis known as Learner Controlled Instruction. Here is available to the student, learning materials in a wide variety of forms, i.e. motion picture, sound slides, programmed texts, standard texts and audio and video tape to name a few. The most recent addition to the learning resource bank for the I.A. student is the mini-computer.

The mini computer is a small portable micro-processor with disk memory storage and cathode ray terminals as input/output devices. The Altair 8800 which was the system demonstrated has a memory capacity of 60,000 bytes and is operated by an extended BASIC language. There are 50 instructional lessons on electronics stored on disks which are retrievable through the terminals for student interaction. These lessons are based on fundamental concepts and principles of electronics and coincide with the learning activity packages which are used in the course. The computer is capable of presenting information, generating questions for student response and branching the students in the program according to the response given. In addition, each lesson has a list of specific behavioral objectives, pre-tests and post-tests.

The scores on these tests are recorded in a management file and permanently stored for future retrieval when requested by the teacher. In the system demonstrated, one disk was an instructional file containing the lesson; the other disk was a management file containing test scores and progress records for each student in the program.

Based on experimentation the following guidelines were generated about the system:

1. Each lesson was divided into sections of no more than 10 kilobytes in size. Each section is retrieved automatically at the completion of the previous section. This allows more than one student to have access to the system at any one time. The TIME SHARE or MULTI USER BASIC will handle three students independently, each on a different lesson under this format.

2. Each lesson consists of approximately 60-90 kilobytes in length and takes approximately 15-30 minutes to take. Students are required to refer to a diagram book for supplemental information as they take the lesson on the Crt terminal.

3. The baud rates (speeds at which the lines are printed) of the terminal are generally no factor in the learning efficiency of the system. However, speeds below 1200 were considered too slow by the students who experienced the program.

The cost of the system at the present time with a second complete memory (60K), 2 Crt terminals and 2 disk drives is approximately \$10,000. During the development of this system costs have diminished as the technology has improved and should continue to drop as new advances are generated.

The average time necessary to generate program, deposit and edit a single lesson is approximately 40 hours.

The system appears to be very usable and should reduce the instructional time of students. It is anticipated that greater utilization will be made of such systems as more people become informed about the capabilities of the system and as equipment prices are reduced.

---

\*Video taped examples of the type and quality of product obtainable with each combination of equipment were shown.

# A Summary of the Philosophy and History of the Doctor of Arts Degree

Ivo E. Lindauer

The Doctor of Arts degree program is primarily designed to prepare college and university teachers; however, some recipients of the degree are taking positions requiring educational leadership and instruction within governmental agencies and private industry. The D.A. degree represents a program of at least three years of study and research beyond the bachelor's degree and is offered primarily in the liberal arts and sciences. The program consists of study in the area of concentration at the same level as the Ph.D. and in similar academic fields but is more broadly defined. It also includes relevant work in the methods of communicating information (usually found in the professional education areas) as well as the mastery of research tools. All D.A. candidates are expected to complete a scholarly investigation, to undergo thorough examination, and to have completed an intern- or externship in undergraduate teaching, supervised by a master teacher. Seminars related to education are an important component of the D.A. program for it provides the candidate an opportunity to delve into the problems associated with teaching in higher education, and insight into the psychology of learning and instruction, curriculum evaluation, and the organization and governance in higher education.

The D.A. degree has been endorsed and approved by a number of professional associations: The Council of Graduate Schools in the United States, The American Association of State Colleges and Universities, The National Academy of Arts and Sciences, The Carnegie Commission on Higher Education, The Bureau of Higher Education of the USOE, The National Endowment for the Humanities, and the North Central Association of Colleges and Secondary Schools. The American Association of State Colleges and Universities has published guidelines for the D.A. degree (1972).

The Doctor of Arts degree was first initiated at Carnegie-Mellon University in 1967. A program at the University of North Dakota followed; and by 1971, thirteen (13) institutions were offering the program. By 1976, twenty-five (25) institutions were offering the D.A. degree and thirty-three (33) were considering its possibility. In 1977, twenty-three (23) institutions continue to offer the degree. (See table.)

It is this author's opinion that more institutions would be offering the program if restrictions had not been placed on the extension of graduate programs by commissions on higher

education. These restrictions, most likely, have resulted from the surplus of doctoral graduates, a cut-back on financial support of graduate programs, and a lack of understanding the function and need of the D.A. degree. Yearly updates on the status of the D.A. degree were conducted from 1970 through 1976 by Dr. Robert H. Koenker, Dean of the Graduate School, Ball State University, Muncie, Indiana. These reports are the basis for this summary.

TABLE 1

*D.A. Degrees Awarded and D.A. Candidates Enrolled by Institution as of June 1977.*

| Institution                           | Date of Initial Program | D.A. Degrees Awarded | Candidates Currently Enrolled |
|---------------------------------------|-------------------------|----------------------|-------------------------------|
| Atlanta University                    | 1975                    | 0                    | 6                             |
| Ball State University                 | 1971                    | 10                   | 43                            |
| Carnegie-Mellon University            | 1967                    | 127                  | 104                           |
| Catholic University of America        | 1971                    | 9                    | 59                            |
| Claremont Graduate School             | 1971                    | 4                    | 3                             |
| Drake University                      | 1972                    | 4                    | 20                            |
| Idaho State University                | 1971                    | 68                   | 59                            |
| Illinois State University             | 1974                    | 0                    | 50                            |
| Lehigh University                     | 1971                    | 8                    | 4                             |
| Middle Tennessee State University     | 1970                    | 57                   | 98                            |
| Ohio State University                 | 1971                    | 3                    | 3                             |
| Simmons College                       | 1973                    | 11                   | 16                            |
| SUNY, Albany                          | 1971                    | 4                    | 8                             |
| Syracuse University                   | 1971                    | 3                    | 2                             |
| University of Illinois Chicago Circle | 1973                    | 1                    | 30                            |
| University of Miami (Florida)         | 1972                    | 20                   | 29                            |
| University of Michigan                | 1971                    | 34                   | 40                            |
| University of Mississippi             | 1970                    | 23                   | 14                            |
| University of North Dakota            | 1970                    | 10                   | 11                            |
| University of Northern Colorado       | 1970                    | 68                   | 107                           |
| University of the Pacific             | 1970                    | 8                    | 12                            |
| University of Washington              | 1970                    | 9                    | 10                            |
| Washington State University           | 1972                    | 1                    | 12                            |
| Totals                                |                         | 482                  | 740                           |

## History and Philosophy of the Doctor of Arts Program in Various Departments at the University of Northern Colorado Including the Graduates, Dissertation Titles and Present Employment

The Doctor of Arts at the University of Northern Colorado was formally approved by the Board of Trustees in August of 1970; however, the University had offered doctoral teaching degrees in several disciplines within the Arts and Sciences under the title of Doctor of Education for a number of years. The North Central Review team in its *Report of a Review Visit to the University of Northern Colorado* in the Spring of 1971 stated:

The shift from the Ed.D. to the Doctorate of Arts carries much potential for strengthening graduate study at UNC, enhancing its appeal to student candidates particularly within the arts and sciences. Though largely untested to date, the D.A. may well be a more marketable degree than the Ed.D. for college teachers in liberal arts disciplines. UNC is in a most favorable position to test the possibilities of the D.A. degree and could become a pilot laboratory for testing its potential and adequacy because of the comparative absence of competing, more widely accepted, and traditional degrees. There is less chance that the programs will under this situation become an alternative for "drop-outs" or "fall-outs" from the Ph.D. programs. By this testing, the D.A. could well achieve an identity and integrity of its own.

Indeed, the above statement by the North Central Review team has, for the most part, been true. Against an enrollment cap, surpluses of doctorates in both education and academic fields, and against dwindling and tightening budgets, the Doctorate of Arts has survived and continues to strengthen and grow. By June of 1977, 68 Doctorate of Arts degrees had been awarded at the University of Northern Colorado and 132 candidates were currently enrolled. All graduates are employed in positions for which they have been prepared. Twenty-three institutions throughout the United States offer the Doctor of Arts degree and as of June, 1977, a total of 482 degrees had been awarded and 740 candidates were currently enrolled.

The history and philosophy of the various departments offering the Doctorate of Arts at UNC, including the graduates, their dissertation title and present employment follows.

### Biological Sciences

*History and Philosophy.* The Department of Biological Sciences initiated the Doctor of Arts Degree program in 1970 with the goal of preparing broadly-trained biologists for teaching positions in two and four-year college/universities. The department has worked hard to develop a program philosophy which recognizes the need for a blend of teaching skills, academic background and research skills appropriate for the college/university teacher.

A major effort is made in the Doctor of Arts biology program to assure a strong academic background including exposure to botanical, biological and zoological course work. Students may emphasize one or more of these areas most appropriately supporting the dissertation topic. We also require academic preparation in pedagogical areas including College Teaching, Effective Teaching and Doctoral Supervised Teaching. One full year or equivalent of teaching experience prior to graduation is also required. Additional course work is recommended for further preparation in selected areas of science education and higher education.

The dissertation is considered an important component of the Doctor of Arts program. The student may select an appropriate pure, applied, or pedagogical topic. Although the scope and depth of the dissertation is not usually as involved as research leading to the Ph.D. degree, it must be of sound scientific design regardless of the type of approach elected. It is felt that the pursuit of a rigorous research experience is vital for the preparation of biology teachers who will be expected to effectively supervise and guide the inquiry learning process, whether in the undergraduate laboratory, supervising independent and honors projects, or advising higher level studies. The department also hopes that this experience will give the individual confidence and desire to continue scholarly studies.

To date, the Doctor of Arts Degree in Biological Sciences has been conferred to twenty candidates. All of these individuals

and five additional candidates, who are in the final stages of their dissertation preparation, are employed in positions for which they have been prepared. The attached list indicates the types of positions held, academic rank, and the dissertation topics of our graduates.

| Graduate<br>Present Employment                                                                                    | Dissertation Title                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Ahern, William<br>Associate Professor,<br>Greenville College                                                      | A study of the parasitic helminthes of American avocet, <i>Recurvirostra americana</i>                                                       |
| Bauerle, Bruce A.<br>Assistant Professor,<br>Mesa College, Grand Junction, Colorado                               | Biology productivity of snakes of the Pawnee site                                                                                            |
| Bergstrom, John<br>Chairman, Division of Natural Sciences,<br>Rock Valley College,<br>Rockford, Illinois          | Woodpecker ecology of the South Platte River floodplain                                                                                      |
| Crumley, Richard<br>Associate Professor,<br>Missouri Western College<br>St. Joseph, Missouri                      | Germination and dormancy responses of several alpine species                                                                                 |
| Duran, John<br>Director of Outreach Education, Metro State College, Denver Colorado                               | Field investigations and energy determination of stomach contents of <i>Peromyscus boylii</i> in Granite Basin area, Yavapai County, Arizona |
| Evan, Donald<br>Instructor, Yakima Valley College,<br>Yakima, Washington                                          | Effects of specific ions at various isosmotic concentrations of germination of <i>Sporobolus airoides</i> seeds                              |
| Frey, John<br>Associate Professor,<br>Mankato State College,<br>Mankato, Minnesota                                | The effects of ozone on the synthesis and storage of nutrients in soybean seeds                                                              |
| Guadagnoli, Frank N.<br>Professor, Western Wyoming Community College, Rock Springs, Wyoming                       | A Study of <i>Rumex crispus</i> L.                                                                                                           |
| Ko, Yeong<br>Researcher, National Chang Shin University,<br>Taichung, Taiwan, Republic of China                   | Some physio-ecological aspects of <i>Distichlis stricta</i> (Torr.) Rydb.                                                                    |
| Koerwitz, Fred<br>Columbus Junior College,<br>Columbus, Nebraska                                                  | Ecology and reproduction of selected species of anastraca in Colorado                                                                        |
| Manomai-udom, Poonsook<br>Liberal Arts Faculty,<br>Thammasat University,<br>Bangkok, Thailand                     | The effects of sodium salicylate on reproduction in the rat                                                                                  |
| Milligan, Dean<br>Assistant Professor,<br>University of Alaska,<br>Anchorage Community College, Anchorage, Alaska | The effect of dextro-amphetamine sulfate on fetal development in the rat and rabbit                                                          |
| Peterson, Gary<br>Assistant Professor,<br>South Dakota State University, Brookings, South Dakota                  | Determination of the presence, location and allelopathic effects of substances produced by <i>Juniperus scopulorum</i> Sarg.                 |
| Reed, Cathy P.<br>Iowa State Community College, Traer, Iowa                                                       | Species diversity in aquatic microecosystem                                                                                                  |
| Richards, Richard E.<br>Associate Professor,<br>Western State College,<br>Gunnison, Colorado                      | The distribution, water balance, and vocalization of the ringtail, <i>Bassariscus astutus</i>                                                |

|                                                                                         |                                                                                                                                                             |
|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ristau, Arlyn E.<br>Associate Professor,<br>Wartburg College,<br>Waverly, Iowa          | Bacterial aerosols of rural and urban areas near cattle feedlots                                                                                            |
| Struebel, Donald<br>Assistant Professor,<br>Idaho State University,<br>Pocatello, Idaho | Behavioral features of sympatry of <i>Spermophilus spilosoma</i> and <i>S. tridecemlineatus</i> and some aspects of the life history of <i>S. spilosoma</i> |
| Tobias, Richard<br>Biology Teacher,<br>District No. 191,<br>Burnsville, Minnesota       | The growth response of acanthors of two species of acanthocephalans to in vitro culture                                                                     |
| Tubbs, Allen<br>Assistant Professor,<br>Emporia Kansas State College, Emporia, Kansas   | Ecology of the spotted ground squirrel                                                                                                                      |

## Chemistry

*History and Philosophy.* The beginnings of a D.A. program in chemistry at the University of Northern Colorado occurred in 1963 with the introduction of an Ed.D. degree in science education with an emphasis in chemistry. This program had some of the desirable features of a D.A. curriculum but was lacking a formal internship and typically required a Ph.D. type research dissertation.

With the introduction of the D.A. degree into American education, the University of Northern Colorado recognized the validity and wisdom of such an approach and introduced it in history, chemistry, geography, mathematics, and the biological sciences in 1970, and in music in 1974. In establishing the D.A. program an attempt was made to maintain the standard of quality present in Ph.D. programs throughout the nation. Admission requirements for the D.A. program in chemistry at UNC are therefore comparable to those of most Ph.D. programs.

General D.A. degree requirements in chemistry include selected graduate-level courses in four areas of chemistry, written comprehensive examinations covering this course work, appropriate science education courses, a supervised practicum in college teaching, research culminating in the writing of a doctoral dissertation and an oral examination in defense of the dissertation. The remaining program is selected from recommended graduate courses in chemistry, physics, statistics, and science education, and where appropriate, from other areas such as mathematics, biology, electronics, etc., depending upon the candidate's background and interest. Students who enter with a B.S. or M.S. must earn a minimum of 135 or 90 quarter hours of credit respectively.

With the development of the D.A. program, the concept of dissertation topics was broadened by the University to include an independent research problem in chemistry, or development and testing of teaching programs and/or techniques in chemistry, or a critical and thorough evaluation of teaching materials of potential value in college teaching (12). However, the UNC Chemistry Department has felt that a study dealing exclusively with the latter area is more appropriately pursued by individuals in science education departments and therefore does not accept dissertations limited to this area. Individuals who choose to do a dissertation in an educationally-oriented topic and have had little or no experience in chemical research are advised to complete a meaningful research project in chemical data collection, synthesis, etc., as part of their overall

program. Likewise, those choosing a research topic for their dissertation are expected to do special work in educational areas.

At the present time (Summer, 1977) a total of nine individuals have received the D.A. degree in chemistry from UNC. All but one of them has a previous graduate degree and previous teaching experience ranging from four to nineteen years. This included high school and/or college work.

Currently there are seven students enrolled in the program. This group represents a broader variety of backgrounds than the earlier group. Some of them entered the program directly out of undergraduate school with no teaching experience. Others have had at least one master's degree and several years of teaching experience. In light of this, more emphasis is now placed on the teaching internship than for the earlier group. The few who have had extensive, formal experience in teaching usually direct their efforts toward development and/or implementation of instructional materials used to supplement classroom lectures rather than lecturing per se, whereas those who have come directly from a B.A. program are expected to present formal, supervised lectures beyond any laboratory assisting they may do.

The current dissertation topics planned by the latter group include traditional chemical research, curriculum development and the development of other instructional materials for specific courses. Experience in directing the latter group in these dissertations has shown that the quality of work and creative thinking involved is certainly equal to that involved in completing a Ph.D. dissertation and the amount of work and time involved can easily equal or exceed that spent on a typical Ph.D. project.

| Graduate                                                                                                                                  | Dissertation Title                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Bunck, S.<br>Assistant Professor<br>Chemistry, Midland<br>Lutheran College,<br>Fremont, Nebraska                                          | Laboratory Activities<br>Incorporating Piagetian<br>Learning Theory for use<br>in PSI General College<br>Chemistry |
| Compton, D.<br>Chemistry Instructor,<br>Monterey Pen. College,<br>Monterey, California                                                    | Reactions of<br>Lithiothiazoles                                                                                    |
| Hauck, E.<br>Head of High School<br>Science Department<br>and Chemistry Teacher;<br>Kelly Walsh H. S.,<br>Casper, Wyoming                 | Inorganic/Anal. Prep.<br>and Characterization                                                                      |
| Ketchens, A.<br>Chairperson, Chemistry<br>Department; Temple<br>Junior College,<br>Temple, Texas                                          | CO <sub>2</sub> Fixation Study                                                                                     |
| Olsen, D.<br>Chairman, Science<br>and Math, Rochester<br>State Junior College                                                             | Organic Synthesis                                                                                                  |
| Patnoe, R.<br>Initially: Teacher,<br>Wurzburg American<br>High School, Germany<br>Currently: Safety<br>Engineer, Colorado<br>State Agency | IR and NMR Spectral<br>Studies of Complex<br>Boranes                                                               |
| Patterson, R.<br>Professor of Chemistry<br>Albany State College,<br>Albany, Georgia                                                       | Stopped-flow Kinetic<br>Study                                                                                      |

Ramanujam, M.  
Clinical Chemist,  
Denver General Hospital  
Denver, Colorado

Wipl, A.  
Head of High School  
Science Department,  
Tehachapi, California

Ring Opening Rxns. of  
gem-Dichloroaziridines

Organic Kinetic Study

## Geography

*History and Philosophy.* The objective of the Doctor of Arts Degree in Geography as stated in the Graduate School Catalog is "... to prepare versatile and well-informed teachers in geography. Emphasis is placed on training effective teachers and not the production of skilled research geographers. A student successfully completing this program will be qualified to teach geography at the junior (community) or senior college level." To accomplish this stated objective, a sound program in geography has developed yielding a high quality marketable product.

Program requirements and course offerings have changed considerably since the program began in 1970. Candidates are required to successfully complete a series of courses related to teaching geography and demonstrate, in the classroom, the ability to communicate geographic material. Required courses in college teaching, curriculum and teaching methodology, and a course in supervised college teaching have been developed to provide the student with the necessary background and experience to work at this level.

In 1970 there were only three courses offered in the Geography Department that were exclusively for graduate students, whereas in the curriculum now available twenty courses covering a wide spectrum of physical and cultural geographic topics along with education related studies are available. One of the most important developments has been the addition of Geography 592, Field Course in Geography. This course allows the candidate to expand his geographic horizons through study-travel, and absolute necessity in geography.

Students attracted to the D.A. program in geography at UNC have a variety of educational backgrounds and work experience. In most every case, the individual is or has been involved in some aspect of education (public school, junior or senior college). In only one or two instances has a student held another degree from UNC and in no case has a student with two previous degrees from UNC been admitted to the D.A. program in geography.

Fifteen states and several foreign countries are represented in the D.A. population with more candidates from Colorado than any other place. To date, forty-seven students have entered the program and can be accounted for as follows:

|                                         |    |
|-----------------------------------------|----|
| Transferred to other programs on campus | 2  |
| At dissertation stage                   | 6  |
| At comprehensive exam stage             | 3  |
| Programs in progress                    | 7  |
| Programs completed                      | 10 |
| Discontinued program                    | 19 |
| Total                                   | 47 |

UNC is the only institution of higher learning in the country offering a D.A. in geography, although about fifty universities offer the Ph.D. and a few others in Ed.D. in geography. These other universities are primarily concerned with preparing research geographers and not college teachers. The need for

the UNC program is apparent and is supported by the large geographic area represented in the student population and by the employment success of candidates. All of the completed D.A.'s and nearly all of those with degrees in progress are employed at the present time.

The future of the D.A. program in geography looks encouraging. Inquiries concerning the program have grown with each year since 1970. Future enrollment may be somewhat limited due to the rising cost of tuition and fees and the lack of more financial assistance. Graduates of the program are enthusiastic in their evaluation of their training and provide valuable publicity for the program.

| Graduate                                                                                                                            | Dissertation Title                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Abu-Bakr, Ali<br>Professor, Geography<br>Department; Riyadh<br>University, Riyadh<br>Saudi Arabia                                   | Cost-Size Relationship<br>and Efficiency of Palm<br>Groves in the Al-Hasa<br>Oasis, Saudi Arabia                                                             |
| Augustin, Byron D.<br>Associate Professor<br>of Geography; Northwest<br>Missouri State University,<br>Marionville, Missouri         | Soils: A Multi-Media<br>Teaching Unit for the<br>Middle Grades                                                                                               |
| Barton, James Henry<br>Assistant Professor of<br>Environmental Science;<br>Union College, Barbourville,<br>Kentucky                 | A Risk Model for Dry-<br>Land Wheat Production<br>in Eastern Colorado                                                                                        |
| Cox, Gary C.<br>Chairman, Geography<br>Department; Morehead<br>State University,<br>Morehead, Kentucky                              | The Catfish Farming<br>Industry of South-<br>eastern United States:<br>A Geographic Inquiry<br>into the Patterns and<br>Processes of Regional<br>Aquaculture |
| Ludwig, Gail S.<br>Extension Geographer;<br>University of Missouri,<br>Columbia, Missouri                                           | Geography and Environ-<br>mental Education: A<br>Handbook for Teachers                                                                                       |
| Richan, F. Partridge<br>Coordinator; Brigham<br>Young University-Utah<br>Navajo Development<br>Council, Provo and<br>Blanding, Utah | Trestles and Tourists:<br>A Study of Steam-Powered<br>Scenic Railroads in the<br>Rocky Mountains                                                             |
| Scott, Steven L.<br>Chairman, Geography<br>Department; University<br>of Northern Colorado,<br>Greeley, Colorado                     | A Geographic Analysis of<br>the Impact of Petroleum<br>Development on the<br>Gillette-Campbell County,<br>Wyoming Community                                  |
| Smith, Richard M.<br>Assistant Professor<br>of Geography; Michigan<br>State University, East<br>Lansing, Michigan                   | Skid Row and Urban Renewal:<br>Some Geographical Aspects<br>of Skyline Urban Renewal<br>in Denver's Larimer Street<br>Skid Row Area                          |
| Spadoni, Robert B.<br>Geography Teacher;<br>Henderson High School,<br>West Chester, Pennsylvania                                    | National Identity Formation<br>and Diffusion in the Common-<br>wealth of the Bahamas: A<br>Politico-Geographic<br>Appraisal                                  |

## History

*History and Philosophy.* The Department of History initiated the Doctor of Arts Degree program in 1970 with the goal of preparing broadly-trained historians for teaching positions in two and four-year colleges and universities. The department has worked hard to develop a program which recognizes the need for the blend of teaching and research skills essential to good undergraduate instruction.

A major effort has been made in the Doctor of Arts program in history to provide a strong academic background in the discipline. The emphasis has been on training generalists rather than specialists; consequently, Doctor of Arts candidates are thoroughly grounded in the field of American, European, and, when appropriate, Third World history. Although the purpose is to train a generalist-teacher, the dissertation is most important. If undergraduate instructors are to assign and evaluate research papers, they must have some experience in the preparation of scholarly projects. Teaching experience is vitally important. Candidates are given opportunities to teach undergraduates in supervised situations. They also are required to enroll in a seminar in higher education designed for Doctor of Arts candidates in all disciplines at UNC which offer the degree.

There are currently five candidates in the program. Two have completed their course work and have jobs in education. One is at Mesa College in Colorado; the other is with the State Department of Education in Arizona. Three are completing their course work.

## Mathematics

*History and Philosophy.* The present Doctor of Arts program in mathematics at the University of Northern Colorado evolved from a mis-named Ed.D. program in mathematics. In 1960, the Department of Mathematics instituted an Ed.D. program in mathematics which was a content-oriented program requiring a minimum of 60 quarter hours credit in graduate-level mathematics and up to 12 quarter hours credit in a supporting degree, such as mathematics education. The core of the program was the three-course sequences in modern algebra, real analysis, topology and complex variables; which is similar to the core of traditional Ph.D. programs, although the goal of the program was to prepare the candidate for a career of teaching mathematics. Unlike the Ph.D., however, the program required a dissertation which was a scholarly work but generally expository in nature. The first graduate under the program was in the Summer of 1968, with eleven more to follow by the time the Ed.D. was phased out. The majority of these graduates chose to take nearly all of their 72 quarter hour course requirements in mathematics courses. The majority of the Ed.D. and D.A. graduates have come from teaching positions in four-year colleges and returned to the same or a similar position.

In 1968, some members of the Mathematics Department began looking at the possibility of obtaining a more appropriate name for this highly content-oriented program. The name selected was the Doctor of Arts. Although the higher administration supported the change, the attempt failed because it lacked adequate support in the department itself. This attempt, however, spearheaded a move two years later by the administration to successfully convert Ed.D. designations in seven content areas to that of the Doctor of Arts. No changes in the requirements or expectations for any of these areas were made at that time. Subsequently, the mathematics and the other D.A.'s were brought in line with the philosophy of the Council of Graduate Schools and its recommendations on the Doctor of Arts program content. This change consisted of the inclusion of some pedagogical courses on college teaching and the conclusion of an intern teaching component. The D.A. in mathematics has subsequently undergone some minor year-by-year

changes since 1970, to evolve into the present program. The majority of the students in the program continue to write scholarly expository dissertations.

| <i>Graduate</i>                                                             | <i>Dissertation Title</i>                                                                                     |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Almes, Philip C.<br>Phillips University<br>Enid, Oklahoma                   | Existence and Stability of Infinitesimal and Finite Periodic Orbits in the Restricted Problem of Three Bodies |
| Balay, Richard H.<br>Metropolitan State College, Denver, Colorado           | Cairo: A Language for Computer-Assisted Instruction                                                           |
| Blandford, Robert D.<br>University of Southern Colorado, Pueblo Colorado    | Ideals In Lattices                                                                                            |
| Brink, Allen L.<br>St. Cloud State College, St. Cloud, Minnesota            | A Problem in Periodic Groups and Some Related Results                                                         |
| Bushnell, Donald D.<br>Fort Lewis College, Durango, Colorado                | Metrization Theorems                                                                                          |
| Campbell, Larry<br>School of the Ozarks, Point Lookout, Missouri            | Decompositions of Torsion-Free Abelian Groups of Finite Rank                                                  |
| Cisneros, Jose A.<br>Oral Roberts University, Tulsa, Oklahoma               | The Perfect Operators                                                                                         |
| Cleveland, Terry L.<br>New Mexico Military Inst., Roswell, New Mexico       | Weak Compactness in Normed Linear Spaces                                                                      |
| Dilley, Larry S.                                                            | Nonassociative Number Theory                                                                                  |
| Dudzik, Stanley<br>Champlain Regional College, Lennoxville, Quebec, Canada  | The Size of a Set: Several Views                                                                              |
| Earles, Robert W.<br>St. Cloud State College, St. Cloud, Minnesota          | Nets in Partially Ordered Spaces                                                                              |
| Evans, France M.<br>Eastern Montana College, Billings, Montana              | Complex Differentiation Theory by Power Series Methods                                                        |
| Harris, Kent<br>Western Illinois University, Macomb, Illinois               | Convexity                                                                                                     |
| Holmen, Robert L.<br>Minot State College, Minot, North Dakota               | A Study of Classical Statistical Inference with Emphasis on Neyman-Pearson Theory                             |
| Janecke, James R.<br>Upper Iowa University, Fayette, Iowa                   | A Survey of Finite Simple Groups                                                                              |
| Kieft, Raymond N.<br>Longmont, Colorado                                     | A Survey of Integration                                                                                       |
| Klann, Walter E.<br>Glendale Community College, Glendale, Arizona           | Properties and Applications of Absolutely Continuous Functions                                                |
| Lacher, Robert J.<br>South Dakota State University, Brookings, South Dakota | Dimensions: A Generalization of Small and Large Inductive Dimensions                                          |
| Lahren, David R.<br>St. Cloud State College, St. Cloud, Minnesota           | A Study of the Compatibility of Certain Topological Covering Properties                                       |
| Lamberson, Roland<br>Des Moines Area Community College, Boone, Iowa         | Completely Multiplicative Arithmetic Functions: An Algebraic Approach                                         |
| Lassiter, Harry V.<br>Craven Community College, New Bern, North Carolina    | The Enumeration and Matrix Characterization of finite Topologies                                              |

|                                                                                    |                                                                                                           |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| Lee, Kenneth<br>Missouri Western State College, St. Joseph, Missouri               | S-Sets and CS-Sets                                                                                        |
| Loser, Ronald E.<br>Adams State College, Alamosa, Colorado                         | Algorithmic Undecidability                                                                                |
| Marion, William A.<br>Mount Senario College, Ladysmith, Wisconsin                  | The Schwartz-Christoffel Transformation-A Mathematical Development and a Numerical Solution               |
| Marsh, Dean<br>Kearney State College, Kearney, Nebraska                            | Graphic and Group Theoretic Solutions to Change Ringing Problems                                          |
| Masters, Christopher<br>Doane College, Crete, Nebraska                             | Spectral Analysis with Applications to Different Operators                                                |
| McGuire, William C.<br>Western New Mexico University, Silver City, New Mex.        | Conjugate Coordinates in Complex Analysis                                                                 |
| McKinley, William S.<br>Easter Montana College, Billings, Montana                  | Generalizations and Applications of Banach's Contraction Mapping Principle                                |
| Meyerholtz, Roy A.<br>Eastern Illinois University, Charleston, Illinois            | A Comprehensive Study of the Development of the Simplex Algorithm for Solving Linear Programming Problems |
| Miller, Gordon L.<br>University of Wisconsin, Stevens Point, Wisconsin             | Quine's New Foundations: A Modern Appraisal                                                               |
| Milner, Billy E.<br>Washburn University, Topeka, Kansas                            | Examples and Counterexamples in Elementary Group Theory                                                   |
| Nash, Gale<br>Western State College, Gunnison, Colorado                            | Commutativity Theorems for Rings                                                                          |
| Nelson, Elaine D.<br>Bemidji State College, Bemidji, Minnesota                     | Uniformly Minimum Variance Unbiased Estimation as Related to Completeness and to Nonregular Densities     |
| Niedfeldt, Gerald<br>Inver Hills Community College, Inver Grove Heights, Minnesota | The Development and Testings of a Basic Mathematics Course at Inver Hills Community College               |
| Silvers, Dixie Lee<br>Westark Community College, Fort Smith, Arkansas              | Oscillation and Nonoscillation Theorems for Second Order Nonlinear Differential Equations                 |
| Smith, Kenneth A.                                                                  | On Function Space Topologies                                                                              |
| Steffenson, Arnold<br>Northern Arizona University, Flagstaff, Arizona              | Examples and Counterexamples in Point Set Topology                                                        |
| Teeters, Joseph<br>University of Wisconsin, Eau Claire, Wisconsin                  | On Generalizations of the Darvoux Property                                                                |
| Tinsley, Alvin R.<br>Central Missouri State University, Warrensburg, Missouri      | The Elementary Treatment of Selected Theorems in Algebraic Topology                                       |
| Weremeyer, Frederic N., Jr.<br>Dickinson State College, Dickinson, North Dakota    | A Generalization of the Derivative: The Dini Derivates                                                    |
| Whittekin, Ronald D.<br>Metropolitan State College, Denver, Colorado               | Purity in Modules                                                                                         |

## Music

*History and Philosophy.* The Doctor of Arts degree in Music was first offered at the University of Northern Colorado in the Fall of 1973. Prior to that time, the School of Music offered only the Doctor of Education (Ed.D.) at the terminal degree level.

It was the wish of the Graduate Faculty in music to design a degree that would speak to aspects of teaching, research, and performance rather than an orientation to only one of those areas. The outcome was a degree uniquely designed for the performing teaching scholar at the college level. The program sought to prepare the candidate in at least two academic and/or performing areas required by the contemporary college or university music schools.

Several concepts introduced in this new degree program were found, from the outset, to be very valuable:

1. The concept of a primary and secondary emphasis was attractive to the student and viable considering that many of the candidates would go into smaller colleges where the teaching load would be varied.

2. For performance candidates, distribution of dissertation credit hours between recitals and written dissertations seemed advisable.

3. The internship externship concept proved very valuable. The Music School recommends both, that is, internship at UNC and an externship at the candidate's own college.

4. The comprehensive examinations covered four basic areas: music history, music theory, primary emphasis and secondary emphasis, if not history or theory. Again, the breadth of knowledge was deemed favorable, especially for positions in small to medium size departments of music.

5. Because of the advisability of the degree being a very individualized program, it was found that the various aspects of the program, admission requirements, advisory examinations, auditions, doctoral interviews, comprehensive examinations, language requirements, etc., had to have very close supervision.

The degree was offered with five areas available for primary emphasis: Theory and Composition, Performance, Pedagogy and Performance, Conducting, and History and Literature.

The Doctor of Arts program in Music is now in its fifth year at UNC. An interesting factor, not considered prior to the initiation of the degree, has been its acceptability by four-year institutions. Nationally, the D.A. was considered as a degree appropriate for teachers at the junior and community college level. However, the School of Music at UNC found many D.A. candidates coming from teaching posts at four-year colleges and universities or moving to that level after residency.

| Graduate                                                                                               | Dissertation Title                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bailey, Donald<br>Department of Music,<br>Houghton College,<br>Houghton, New York 14744                | A Study of Stylistic and<br>Compositional Elements<br>of Anthem (Stravinsky),<br>Fragments of Archilochos<br>(Foss), and Creation of<br>Prologue (Ussachevsky) |
| Lyne, Gregory<br>College of Fine Arts,<br>Eastern New Mexico University,<br>Portales, New Mexico 88130 | Edmund Rubbra: the Man and<br>his Choral Works                                                                                                                 |
| Pegram, Wayne<br>Department of Music,<br>Tennessee Tech University,<br>Cookeville, Tennessee 38501     | "Conflict - a Symphonic<br>Tone Poem"                                                                                                                          |
| Winkle, William<br>Department of Music,<br>Chadron State College,<br>Chadron, Nebraska 69337           | Grainger's Lincolnshire<br>Posy: An Early Masterpiece<br>for Wind Band                                                                                         |

## Promoting the Doctor of Arts Program

James E. Miller

At the November D.A. Conference held at UNC, Dr. James E. Miller, Dean of the College of Performing and Visual Arts, discussed and explained several methods of promoting the degree.

Dean Miller explained that while last year's attempt by University representatives to obtain external funding for the D.A. programs was not successful, the trips to some eastern schools did help in promoting and providing information about the D.A.

An explanation by Dean Miller of some informal methods of promotion used by the School of Music helped to illustrate some exemplary avenues that may lend themselves to promotion of the D.A. degree in other disciplines. A prime example is that the Music School faculty frequently serve as guest conductors and performers at other schools which provide opportunities to promote the program and recruit candidates.

Brochures are sent to all names in the directories of the College Music Society and the National Association of Schools of Music and with favorable results.

The best promoters, according to Dean Miller, are individuals who tell about the D.A. program while at regional and national meetings. He credited the Dean of the Graduate School, Arthur Reynolds, as being most influential in spreading the idea of the advanced teaching degree. Dean Miller also credits graduates of the D.A. Program with much of the informal promotion it has received. He says, "The graduates will tell the story themselves and perpetuate the program."

Using primarily these informal methods, Dean Miller says the program has flourished. He cited the three year old D.A. program in Music as having four graduates and 54 candidates presently enrolled. The response from the graduates has been favorable and apparently is serving their needs. *Summary by Ina Fox.*

## Fostering Interdepartmental Doctor of Arts Activities

Robert O. Schulze

Dr. Robert O. Schulze, Dean of the College of Arts and Sciences at UNC, discussed the cross-disciplinary D.A. course he had been teaching officially entitled, ID 702 - "Seminar in College Teaching," but unofficially designated, "Survival in Academia."

According to Dean Schulze, the importance of the interdisciplinary approach is augmented by the fact that ID 702 provides an element heretofore missing from D.A. classes, one concerned with the "social or institutional context of teaching."

Taking advantage of the experience of faculty and administrators from various schools and disciplines, the seminar endeavors to familiarize D.A. students with various aspects of

their future roles as members of a college or university community, not simply their function as teachers. Thus, the seminar deals with such varied topics as: trends, problems, and innovations in higher education, department/college/university structures and operations, faculty and student legal rights and obligations, the integration of minorities into colleges and universities, curricular developments, off-campus and outreach activities, the business and management dimensions of college, etc.

It was also noted that ID 702 is the sole course which is required of all D.A. students, and thus the only one which affords candidates from all six participating disciplines an opportunity to share experiences, perspectives, and ideas. *Summary by Ina Fox.*

## Conference Program

November 10

- 8:30 a.m. Registration - Coffee and Rolls
- 9:00 a.m. Opening Activities  
*Dr. Ivo E. Lindauer, Department of Biological Sciences, University of Northern Colorado*  
 Welcome  
*Dr. Richard R. Bond, President, University of Northern Colorado*
- 9:30 a.m. History and Update of the Doctor of Arts Degree and Programs  
*Dr. Mary Magdala Thompson, Graduate Dean, Loyola College, Baltimore, Maryland*
- 10:30 a.m. Coffee Break
- 10:45 a.m. Panel of Experienced Doctor of Arts Graduate Teachers  
*Moderator: Dr. Steve Scott, Chairman, Geography Department*  
*Dr. Greg Lyne, College of Fine Arts, Eastern New Mexico University, Portales, New Mexico*  
*Dr. Gale Nash, Associate Professor of Mathematics, Western State College, Gunnison, Colorado*  
*Dr. Gene Hauck, Kelly Walsh High School, Casper, Wyoming, Chairman, Department of Science*  
*Mr. Andy Ferryman, Department of History, University of Northern Colorado, Greeley, Colorado*  
*Dr. Byron Augustin, Associate Professor of Geography, Northwest Missouri State University, Maryville, Missouri*  
*Dr. Arlyn Ristau, Associate Professor of Biology, Wartburg College, Waverly, Iowa*
- 11:45 a.m. Lunch -- Tobey-Kendel Hall
- 1:00 p.m. Issues and Promises of the Doctor of Arts in Higher Education  
*Dr. Erwin R. Steinberg, Dean, College of Humanities and Social Sciences, Carnegie Mellon University, Pittsburgh*
- 2:15 p.m. Afternoon Break
- 2:30 p.m. Workshop  
*Dr. John L. Dietz, Department of Geography, UNC, Coordinator*  
 1. Research in the Doctor of Arts Program  
*Dr. Ronald Plakke, Chairman, Department of Biological Sciences*  
 2. Education Components of the Doctor of Arts Degree  
*Dr. Ken Hogan, Chairman, Department of Higher Education*
- 3:30 p.m. Ralph Nader - Special University Lecturer  
 University Center Ballroom
- 5:00 p.m. Recess
- 7:30 - Deans Session - Faculty Lounge
- 9:30 p.m. Issues and Answers -- Presentation and Social  
*Dr. Arthur Reynolds, Graduate School; Dr. Bruce Broderius, College of Education; Dr. Robert Schulze, College of Arts and Sciences; Dr. James Miller, College of Visual and Performing Arts; Dr. Donald Luketich, School of Educational Change and Development.*

## November 11

- 8:00 a.m. Coffee and Rolls
- 8:30 a.m. The Doctor of Arts Program at University of Illinois, Chicago Circle Campus, and Discussion of New Trends  
*Dr. Irwin K. Feinstein, Professor of Mathematics*
- 9:30 a.m. Departmental Workshop on Problems and Issues of Various Disciplines  
 1. *Spatial Decision Making: Role Playing, Simulation in Geographic Education*  
*Dr. David Cole and Mr. George Huppert (Geography)*  
 2. *Supervised Doctoral Candidate Teaching in Biological Sciences*  
*Dr. Edmund Richards*  
 3. *Current Issues Concerning the Doctor of Arts in Music*  
*Dr. Sanford Linscome*  
 4. *New Methods of Teaching and Research in History Important to the Doctor of Arts Candidate*  
*Dr. Robert Larson and Dr. Steven Powers*  
 5. *Potpourri of Problems Facing the Chemistry Doctor of Arts Program*  
*Dr. Roger Kovar and Dr. James Schreck*  
 6. *General Discussion of Mathematics Program with Faculty and Students*  
*Dr. Robert Heiny and Dr. Donald Elliott*
- 10:30 a.m. Coffee Break
- 10:45 a.m. Reaction of Current Doctor of Arts Students in Various Disciplines -- Panel Discussion  
 Moderator: *Dr. Art Reynolds, Dean of Graduate School*  
 Participants include: *Mark Parman, Chemistry; Susan Cable, Music (Metro State - Denver); William Cooper, Jr., History; Gary McCallister, Biological Science (Mesa College - Colorado); Berry Holecheck, Geography; Peggy Robinson, Mathematics, (Univ. of No. Arizona); and Larry Bamford, School of Educational Change and Development, (Colo. Mountain College, Glenwood)*
- 11:45 a.m. Lunch --  
Tobey-Kendel Hall
- 1:30 p.m. New Trends in Communicating Information  
*Dr. Ronald Camp, Director, Educational Materials Services*  
*Dr. Harold Bowman, Chairman, Department of Educational Media*
- 2:30 p.m. Promoting the Doctor of Arts Program  
*Dr. James E. Miller, Dean, College of Visual and Performing Arts*
- 3:00 p.m. Fostering Interdepartmental Doctor of Arts Activities  
*Dr. Robert O. Schulze, Dean, College of Arts and Sciences*
- 3:15 p.m. Summary and Concluding Remarks
- 3:30 p.m. Adjournment

All sessions will be held in rooms 246, 247 and 248 of the University Center.

## Dissertation Capsules

This section of the Journal is devoted to brief capsules of doctoral dissertations completed at the University of Northern Colorado during the preceding quarter. For the readers convenience, they have been classified under several general headings.

### Business Education

PACKLER, GLEN DALE. "Work-Experience Satisfaction as Perceived by Non-Terminal Business Students at Northeastern Junior College." Doctor of Education dissertation, University of Northern Colorado, 1977.

This descriptive study was completed to assess the satisfactions, perceived by students, arising from a cooperative-work-experience placement for transfer students in the Division of Business and Economics. The evaluation addressed the questions stated in the following defined problem.

What satisfactions and dissatisfactions do the (academic) cooperative-work-experience students have from their on-the-job training experience? Do the students involved in the cooperative program feel they are meeting the objectives of the program and is there a difference related to the attainment of these objectives between the self-assessment of the cooperative and the non-cooperative student? Are there suggestions that the cooperative students would offer for program change or improvement?

Findings obtained from the study led to the following conclusions:

1. The Minnesota Satisfaction Questionnaire may be used to identify within a homogeneous group student perceived satisfaction. The experimental group, however, was sufficiently different from the national sample so that conclusions cannot be drawn comparing the sample with national norms.
2. There was no statistical evidence to support, at the .10 level of significance, the hypothesis that the experimental group of cooperative students perceive greater self-confidence, self-awareness, basic skills, or better established career goals than the control group.
3. The cooperative-work-experience student perceives himself slightly more mature but less confident than his counterpart in the control group. The cooperative student, it appears, also felt that he will be better able to obtain full-time employment after graduation. Significant at the .005 level using a Chi-square test was the fact that the student with cooperative-work-experience felt that he would be employed on a full-time job upon graduation with his bachelor's degree. The student that had not had a cooperative-experience was less certain as to what he would be doing.
4. The cooperative students felt that their greatest source of help during the job placement was obtained from the employer. They were generally satisfied and complimentary of the work-experience program. They identified similar

advantages to those noted in current literature that are attributed to cooperative-work-experience.

NNEDU, EGBUACHO EUSEBIUS IHEMEJE. "Customers' Perceptions of Selected Commercial Bank Services in Greeley, Colorado." Doctor of Education dissertation, University of Northern Colorado, 1977.

The primary purpose of this study was to identify, analyze and compare the expressed perceptions of three pairs of bank customer groups, namely the young and the older, the male and the female, and the college graduates and the non-college graduates. Additional purposes were to ascertain what improvements to the bank services the bank customers considered necessary; to identify the expressed criteria upon which the bank customers based their bank selection decision, and the reasons why these customers would switch patronage from one bank to another.

The investigator concluded:

1. Commercial banks, in the city of Greeley, are satisfying the older bank customers more than the young ones.
2. Older bank customers, as a group, are more aware of the existence of the various services provided by the banks than the young customers.
3. Commercial banks in Greeley are satisfying the female customers more than the male customers.
4. College education or the lack of it does not significantly affect the perceptions of bank customers in the city of Greeley.
5. Occupational membership (white and blue collar) and residential location do affect the perceptions of bank customers in varying degrees.
6. A great majority of bank customers in Greeley are demanding more convenience in services and the lowering of the cost of services.
7. Convenience of location and the recommendation of friends, relatives and business associates are major criteria for the selection and patronage of commercial banks.
8. Poor services, inconvenience of location, and unfriendliness of personnel are the major reasons why customers will switch or consider switching patronage from one bank to another.
9. Commercial bank customers in Greeley are demanding weekend full service banking from their banks.

PERRY, HOWARD LEONARD. "An Investigation of Decision Making Tasks of Legal Secretaries in Order to Develop In-Basket Educational Materials." Published Doctor of Philosophy dissertation, University of Northern Colorado, 1977.

This study was designed to develop in-basket problems to assist business teachers and others in preparing future legal secretaries in decision making activities.

A comparison of the decision making activities by legal secretaries in each of the eight groups resulted in these findings:

1. The least experienced secretaries did the most banking activities.
2. Typing and filing activities constituted thirteen and four percent of the activities of legal secretaries when classified by years of experience.
3. The number of years of experience had no effect on the processing of legal forms.
4. Where more legal secretaries were in an office, more activities concerned banking, legal documents, processing letters, and processing legal forms.
5. Where more legal secretaries were in a legal office, fewer activities concerned bookkeeping.
6. Legal secretaries in a 6-12 legal-secretary office had fewer dictation and telephone activities and more filing, mail, and photocopying activities than legal secretaries in offices with fewer than six legal secretaries.
7. Most of the legal secretaries' time was used processing legal forms.
8. Legal secretaries with less than one year's experience used more time on banking, law library, and receptionist activities than did legal secretaries with more than one year's experience.
9. Where there were more years' experience, there was more time used on bookkeeping activities and less time on typing letters, handling mail, miscellaneous, and telephone activities.
10. Legal secretaries with fewer than eight years of experience used increasingly more time delivering legal papers.
11. The number of legal offices had no effect on the amount of time spent processing legal forms.
12. Secretaries in two-legal-secretary office used more time delivering papers than did secretaries in offices with more than one legal secretary.
13. A secretary in a one-legal-secretary office used more time delivering papers than did secretaries in offices with more than one legal secretary.
14. The time spent on filing, typing letters, processing legal forms, and mail activities increased with the number of legal secretaries in an office.
15. The time used on dictation and receptionist activities increased with the number of legal secretaries until the legal secretaries in a 6-12 legal-secretary office.
16. The legal secretaries in a 6-12 legal-secretary office used twice the time on banking and less time on receptionist activities than did legal secretaries in offices with fewer than six legal secretaries.
17. The more years' experience the legal secretaries had, the fewer overall decisions they made and the more decisions they made concerning legal forms.
18. Kendall's tau showed that legal secretaries in a 6-12 legal-secretary office differed significantly from the total group and from legal secretaries in offices with fewer than six legal secretaries.
19. Telephone activities created more conferences between the lawyer and the legal secretary.
20. Where there were more legal secretaries in an office, there were more activities generated from within.

## College Student Personnel Administration

HALLSTEN, JOHN G. "Interpersonal Effectiveness Training for College Students." Published Doctor of Philosophy Dissertation, University of Northern Colorado, 1977.

The purpose of this study was twofold: (1) to design and implement an Interpersonal Effectiveness Training Course for college students, and (2) to assess the effects of training in increasing participants' level of interpersonal functioning, and improving participants' self-concept. The assessment focused on pre- post-training changes within the treatment group, and post-training differences between the treatment group and a comparison group and among specified treatment group sub-groups defined by class standing, sex, and attendance.

Training effects were measured by the *Communication Assessment Index*, the *Discrimination Assessment Index*, the *Interpersonal Check List*, and the *Tennessee Self Concept Scale*.

After pre-testing, subjects in the treatment group met twice a week for nine consecutive weeks for a total of 22 hours of training. Co-instructors were an associate professor and the investigator, both from the University of Northern Colorado.

The training was divided into two major sections. Section one focused upon six developmental tasks relevant to interpersonal effectiveness and appropriate to college-age adults. Section two, the skills training section, focused on two major sets of interpersonal behavior: attending behavior and influencing behavior. The training format included general and specific instruction, live and videotaped modeling, behavior rehearsal, observation, feedback, and homework assignments.

An analysis of post-treatment discrimination and communication test scores indicated significant gains ( $p < .001$ ) in interpersonal functioning within the treatment group. Significant gains ( $p < .001$ ) in interpersonal functioning were also indicated when post-training differences between the treatment group and the control group were analyzed.

Overall, positive improvement in self-concept was suggested by significant pre- post-gains ( $p < .05$ ) within the treatment group for seven *Tennessee Self Concept Scale* subscale variables, including the "Total Positive" subscale variable. Significant gains in self-concept were also indicated within the treatment group on the *Interpersonal Check List*.

Tests computed to determine differences in training effect among various treatment group subgroups defined by class, sex, and attendance indicated no significant differences. A full discussion of these outcomes and their implications along with appropriate conclusions and recommendations are included as a part of the study.

In summary, subjects who participated in twenty-two hours of Interpersonal Effectiveness Training for college students reported gains in level of interpersonal functioning and improvement in self-concept. Subjects' sex and class standing did not have a significant effect on these outcomes.

ROSS, JAMES H. "The Development and Evaluation of a Group Premarital Counseling Workshop." Published Doctor of Philosophy dissertation, University of Northern Colorado, 1977.

Concern is expressed for the minimal emphasis upon pre-marital counseling. It is stressed that couples contemplating marriage do not have an adequate awareness of the attitudes of their partner on important issues related to marriage. They become caught up in fantasies about love and marriage and do not recognize basic differences that often exist. The study develops a pre-marital counseling workshop that will enable couples to press beyond romantic conceptions of marriage and to approach this important commitment in a more realistic fashion.

The workshop developed consists of six two-hour sessions which are devoted to covering the 10 areas of communication, constructive fighting, children, love, sex, vocation, finances, religion, leisure time, and in-laws. Each session is divided into three segments. The first segment is devoted to a mini-lecture given by the counselor and deals with the assigned topic. The second segment is devoted to dyadic interaction, or discussion between partners. The last segment is wrap-up time and group sharing.

Subjective and objective evaluation is reported. Subjective evaluation is based upon case study reports from participants and the counselor. Objective evaluation is achieved by a comparison of pre- and post-test results of participants on the Pre-Marital Inventory and the Intimacy Rating Scale. Both subjective and objective results reveal a positive evaluation of the workshop.

SCHROER, ANNE CHRISTINE PARTCHEY. "The Effects of the Career Motivation Process Program on the Self-Concepts of Female and Male College Students." Published Doctor of Philosophy dissertation, University of Northern Colorado, 1977.

The purpose of this study was to determine the effectiveness of the CMP program in changing the self-concepts of participants. The investigation also sought to determine differences and similarities which exist between male and female college students in the area of self-concept.

Comparison of experimental and control group members at Posttest I revealed significantly higher scores on the Self-Satisfaction and Moral-Ethical Self scales for experimental group members. If CMP participation contributed to the significant differences on these two scales, the results were not long-lasting. There was not significant difference between Pretest and Posttest I scores for experimental members. The Posttest II showed no significant differences between experimental and control groups. No significant differences were measured when experimental males and females were compared at Posttest I.

At the conclusion of the study, males in the experimental and control groups revealed scores that were very similar to their Pretest scores. The pattern of self-concept change was different for females. Experimental females scored higher than males at the outset and grew in a positive direction, receiving the highest Total Positive score of the entire study. Females in the control group moved in a negative direction at the conclusion of the study, receiving the lowest Total Positive score of the study. It appears from the results of this study that female and male college students had different patterns of self-concept change.

A compilation of subjective evaluations indicates that CMP participants reacted positively to the group career development experience almost without exception. Males and females felt they had gathered valuable information regarding personal and career information. It was concluded that although the CMP program did not have a major impact on the self-concepts of college sophomores as measured by the TSCS, it is an appropriate developmental program to be used on the college student population.

SHARP, LEONARD LOUIS. "An Analysis of the Effects of the Resident, if Environment on Student Perceptions and Characteristics at a Jesuit University." Published Doctor of Philosophy dissertation, University of Northern Colorado, 1977.

This study was designed to analytically investigate and compare any differences in perceptions, attitudes, and characteristics of various groups of students at an urban Jesuit university in relation to their place of residence. The problem was twofold: (a) to determine if living groups were influenced by their residential environment if how they perceived their institutional climate; and (b) to determine if living groups had significantly different characteristics which influenced their perceptions and choice of residence.

The findings indicated that place of residence does not appear to have any significant influence on how students perceive their institutional climate in terms of satisfaction with faculty, administration, students, and major. Women were, however, found to be better satisfied than men with the elements of their major field of study.

Students seemingly developed good study habits regardless of where they resided. Comparisons of group scores failed to produce any significant differences in family independence, cultural sophistication, and academic achievement. Since all student groups were achieving at approximately the same academic pace, the living environment could not be considered a contributing factor to academic achievement.

Metro men were found to be more independent of their peers than commuter women. Men and women differed in terms of social conscience with women showing a higher moral concern about social matters. Residence hall students possessed the most conservative attitudes, contrasting with the off-campus apartment residents who exhibited the most liberal attitudes. Since most off-campus apartment residents had formerly resided in the residence halls, this attitudinal difference in liberalism was found to be rather unique and warrants further investigation.

Comparisons showed students residing in residence halls were more actively involved in extra-curricular activities than off-campus and commuter students. The activity involvement was found to be directly related to the distance the students lived from campus and could be considered affected by place of residence.

The findings of this investigation showed the residential environment not to be a contributing factor in influencing student characteristics, attitudes, and perceptions. The residential environment also appeared to have no measurable impact upon students to the point of significantly influencing their behavior.

## Curriculum and Instruction

DICK, ROBERT LOWELL. "Teacher Role Perception of Music Student Teachers Before and After Student Teaching at the University of Northern Colorado." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

This study investigated music students about to begin their student teaching at the University of Northern Colorado and the University of Oregon. An instrument was devised that presented seven different roles of a music teacher with from four to nine possible choices. It is called *The Music Teacher Role Check List*. The music student teachers answered the instrument pre and post. Each supervising teacher in the schools or at the university involved completed the instrument only once. This data acted as a constant for comparison purposes. Data were gathered from both schools. Correlation coefficients were computed to determine comparisons.

Some of the pertinent findings of the study were:

1. Music student teachers and their supervising teachers perceive the role of a music teacher in generally the same way
2. When there are differences in their perception it is only a minor difference
3. There are only insignificant differences between role perceptions of music student teachers and supervising music teachers at the two universities

Since the findings of this study support the conclusions of other studies with regard to the influence of supervising teachers on their student teacher, it is important that consideration be given to the role perception of supervising teachers at the time they are selected.

Attempts should be made to find out the extent to which music student teaching experiences provide opportunities for music student teachers to play the roles they consider important.

The relation between role perception and student teaching effectiveness should be studied.

GIBSON, DIANE JENKET. "Development of a Teacher Center in Anchorage, Alaska." Published Doctor of Education dissertation, University of Northern Colorado, 1978.

The purpose of this study was to determine: (1) whether a teacher center was the proper vehicle to be established to meet the needs of the Anchorage certificated personnel, and (2) if so, to make recommendations as to the types of programs and services a center should offer to best meet the most pressing needs.

To determine the common concerns of the Anchorage certificated personnel, a needs assessment instrument was designed. A representative sample of the population was interviewed and asked the question, "What kinds of needs do you have which, if satisfied, would help to make you happier, more productive, and more effective in your position?" The concerns mentioned most often by the sample were incorporated into the survey instrument used in this study.

The data revealed that the certificated personnel of the Anchorage School District had a variety of unmet needs and the subgroups of the population had needs which were unique to them.

Building Administrators differed from the other two subgroups in that they desired more direction and support from the Central Administration Building. Elementary Teachers emphasized the need for resource people and services to assist them in the tasks required of them in the classroom. Secondary Teachers saw the need for more release time for and input into in-service activities, and up-to-date curricular materials.

It was concluded that needs of certificated personnel not met divided into two categories: (1) those which could be satisfied by administrative policy or procedural changes, and (2) those which could be satisfied through application of teacher centering concepts.

The data further indicated that two centering types should be utilized to best serve the variety of unmet needs: (1) The Responsive functional type of center, and (2) The Facilitating functional type of center.

The Responsive center would function as a task force which responds to needs requiring diagnosis or evaluation to determine improvements necessary to better meet the needs of the population. The Facilitating type center would provide continuous services in a permanent location. This center type could compliment the efforts of the Responsive type by providing services to help implement the recommended changes made by the Responsive center.

KHALAF, ROSSIM ABDELKARIM. "Vocational Agriculture in Jordan: A Formative Evaluation of the Secondary Schools' Curriculum." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

This study addressed itself to whether the vocational agricultural secondary school curriculum in Jordan is meeting its stated objectives and to the views on the program held by students and their teachers.

The curriculum was found to be deficient in satisfying the vocational, academic and occupational needs of the students. Furthermore, the curriculum was determined to be heavily oriented to subject matter and not in agreement with the needs of the students as they perceive those needs. Poor rapport existed between teachers and students.

The analysis revealed that the curriculum was in need of evaluation. The components of "Aims and Objectives" and of "Content" received the most positive ratings on the 5-point Likert scale by both teachers and students. The two components of "Instruction" and "Evaluation" received the poorest ratings. The findings further revealed that teachers at Al-Rabbah school were undecided on whether the existing curriculum was fulfilling its intended aims and objectives, and were also uncertain with respect to the components of "Instruction" and "Evaluation". Of equal uncertainty were their views toward the curriculum "Content" area. Teachers' ratings of all the items on the questionnaire ranged between a mean of 1.88 and a mean of 3.75 (1 being the assigned scale value of "Very Good" and 5 being the assigned scale value of "Very Poor") on the 5-point Likert scale. The teachers appeared to rank several items similarly by assigning the items to the same rank.

Teachers at Al-Shawbak school were found to be non-committed as to the component of "Evaluation". As to the other components, they were generally more positive toward the curriculum than their counterparts at Al-Rabbah.

Students in both schools were found to be less approving of the curriculum in the 10th and 12th grades than were those in the 11th grade. By and large, students looked at the curriculum with disfavor.

Teachers at Al-Shawbak appeared to be less restrained in volunteering information and were generally better qualified academically than their counterparts at Al-Shawbak.

KLIEWER, CECILLE JOYCE. "The Role of Consumer Education in Foods Curricula as Perceived by Home Economics Teachers in Colorado." Published Doctor of Education dissertation, University of Northern Colorado, 1978.

The purpose of this study was to provide information which can be used to create an awareness on the part of home economics educators of the need to prepare students as independent thinking consumers with an understanding of the responsibilities and effects of the consumer in using the limited resources of the earth. An opinionnaire was developed and used to collect data which indicated the perceptions of home economics teachers in Colorado of the importance of teaching consumer education in food classes and the issues they teach.

The findings of the study may be summarized as follows: All teachers indicated that it was very important to include consumer education in foods classes. However, the various issues considered were ranked quite differently as to importance. Generally those not teaching foods classes ranked all issues as very important to a greater extent than those who were teaching. In nearly every instance fewer persons taught the issue than ranked it very important. The issues ranked very important by the most respondents were those which have traditionally been a part of the home economics food curriculum and those which were least controversial. Those issues ranked very important by 95 or more of the foods teachers were:

1. Family Food Budgeting. 2. Meal Planning. 3. Label Reading and 4. Consumer Information.

Issues ranked very important by 80 to 94 percent of those teaching foods included:

1. Food Cost. 2. Competition and Food Prices. 3. Food Choices and Nutritional Status. 4. Consumer Protection. 5. Preservation of Food
- Those issues considered least important as indicated by a very important ranking by between only 12 to 15 of foods teachers were:
1. Land Use and Controls. 2. Family Farms Versus Corporate Farms. 3. The Role of Global Corporations in Food Issues.

It was concluded by the investigator that the issues generally agreed upon by the respondents as being very important to be taught in foods classes were those which have traditionally been a part of the

home economics curriculum and those which have not been controversial, are not highly theoretical and are not altruistic in nature. Recommendations for curricular and instructional changes are described in the study.

LEMKE, RICHARD DUANE. "Problems of Mexican-American Adolescents at Greeley Central High School as Perceived by Students and Faculty." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

This study was designed to determine the problems of Mexican-American students, grades ten through twelve at Greeley Central High School, and to determine if they were different from the problems of Anglo students and the problems that teachers at Greeley Central perceived to be the Mexican-American students' problems. It was also designed to measure the extent to which there were correlations among the perceptions of the three groups. Guidelines for problem alleviation were included.

Correlations determined within the study showed that, according to ranking of problem areas, there was significant correlation between all tenth grade Mexican-Americans and tenth grade Anglos and the way they ranked their problems. All eleventh grade Mexican-American students and Anglo students showed a significant correlation in the way they ranked their problems. All twelfth grade students, Anglo and Mexican-American showed no significant correlation in the way they ranked their problems. There was significant correlation between the rankings of all female Mexican-American students and all female Anglo students. No significant correlation was indicated between the rankings of all male Mexican-American students and all male Anglo students. The greatest difference of opinion concerning the rankings of problems was reflected when the teachers' rankings were compared to those of the Mexican-American students.

LUNA, FAUSTINO C. "Role Conflict as Perceived by Chicano/Chicana Administrators in Selected Public School Districts in Colorado." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

This study was designed to determine whether role conflict was experienced by Chicano administrators based on preadministrative role perceptions versus role perceptions after being appointed to an administrative post. It is hoped that the study might serve upper level administrators by helping them to better understand and thereby aid in ameliorating the situation faced by Chicano educators in administrative posts as well as provide a basis for further research.

On the basis of the findings, it was concluded that: 1. Role conflict made a difference in the participants' perceptions of students; 2. Role conflict made a difference in the participants' perceptions of administrators; 3. Role conflict made a difference in the participants' perceptions of community-parents; 4. Role conflict made a difference in the participants' perceptions of faculty; 5. Role conflict made a difference in the participants' perceptions of building student self concept as a source of job satisfaction; 6. Role conflict made a difference in the participants' perceptions of student achievement as a source of job satisfaction; 7. Role conflict made a difference in the participants' perceptions of the importance of an inability to meet student needs as a source of job satisfaction; 8. Role conflict made a difference in the participants' perceptions of the importance of subtle discrimination as a source of job dissatisfaction; 9. Role conflict made a difference in the participants' perceptions of the importance of procedures and regulations as sources of job dissatisfaction; and 10. A basis exists for further research, administrative change and curricular change.

NASH, GWENDOLYN T. "A Model for Implementing the PUSH Program for Excellence in Education: A Black Community Initiative." Published Doctor of Education Dissertation, University of Northern Colorado, 1977.

The purpose of this study was to assess the extent to which black community resources could be mobilized to improve black students' attitude towards school and inspire black youth to strive for academic excellence. The study was based upon a concept espoused by Reverend Jessie L. Jackson, national leader of the Operation PUSH movement. Since attitudes can be influenced in many ways, the study incorporated a number of variables which researchers and psychologists have indicated as barriers to academic achievement. The study was limited to recognized black community organizations and black high school students in Denver, Colorado.

Overall, students who responded to the survey felt that the quality of teachers, extra-curricular activities and race relations in the schools were good. The lowest specific rating was given to discipline. Two variables which ranked significantly high as perceived barriers to attainment of academic excellence were negative attitudes of black students and use of drugs. Other significant responses from the students indicated that a majority of them are not aware of what the black community is doing to meet the needs of black youth; none of the community organizations listed in the survey received a significantly high rating in terms of their effectiveness and interaction with black students.

Community organizations participating in the survey were in agreement with the students in terms of feeling that discipline in the schools was not very good. Two community respondents felt that there was nothing good about the Denver schools. In contrast to the student responses, organizations ranked poor teaching and lack of interest in the community as the greatest barriers for black students. The organizations ranked the quality of their service to black youth significantly higher than did the youth themselves. The community organizations indicated a need for more knowledge regarding ways in which to better interact with black youth. Both the students and community organizations expressed a need for more unity in the black community. Both groups of respondents appeared to recognize the gap between adults and youth and the fact that neither group understood the other very well.

Based upon the results of the survey and the review of related literature, a community interaction model which prescribes an initiating structure and execution structure for implementing the PUSH concept in the Denver community was developed. The recommended initiating structure consists of a coalition between the national PUSH organization, the local Denver chapter of PUSH, black ministers of the city and black media representatives. The model is highly dependent on publicity in the initial stages and the ability of the initiating structure to effectively pull together and properly utilize the knowledges and skills of the other organizations who expressed a willingness to serve. The execution structure is built along committee lines which allow for individual organizational efforts as well as joint activities, all designed to alleviate negative feelings and attitudes among black youth.

RAKPRAJA (CHOOKIAT), LADDA. "Perception of Needs of Secondary School Mathematics Teachers in Thailand Relating to In-service Education." Published Doctor of Education dissertation, University of Northern Colorado, 1978.

The study was designed to focus on the perceptions by Thai secondary school mathematics teachers and Thai university mathematics faculty members of the following questions:

1. Do current university in-service mathematics programs provide adequate experience and training for such teachers to capably perform their duties?

2. Are these teachers adequately prepared for the duties required in their profession toward teaching methodology and course content?

A majority of Thai secondary school mathematics teachers had not earned any undergraduate semester hours in methods of teaching but indicated they had received adequate preparation in teaching secondary mathematics and had received adequate in-service training since they had begun teaching.

Thai university mathematics faculty members perceived teachers' preparation as bi-modal either outstanding or poor and in-service training as adequate.

Secondary school teachers indicated a stronger need in methodology preparation, whereas, faculty members perceived the stronger need to be in content preparation.

MICHAEL V. WEERTS, "Development of An Instrument to Assess Employee Sponsored Career Development Programs for Sub-Professional Employees." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

The purpose of this study was two-fold:

- a. to identify the practices and attitudes of major Colorado public and private employers toward career development of sub-professional employees, and

- b. to prepare a self-assessment questionnaire by which employers can compare their practices to those employers of comparable size and type of business.

A list of Colorado employers with employee populations larger than 250 were identified. These employers were mailed background

information describing the study purposes and a 72 item, Likert style questionnaire to be returned to the researcher. The questionnaire was developed through the use of advisory committees, advice from research experts, and outside pilot test procedures. Employers receiving the questionnaire were designated as: (a) mining, manufacturing or construction; (b) commercial services; (c) wholesale or retail trade; and (d) public institutions or agencies according to Standard Industrial Classification Codes.

Statistical analysis of the returned questionnaires was undertaken to identify significant means (xs) for each item by employer group.

The two purposes of the study were completed. Lists of significant practices and attitudes are presented by individual employer groups. "Employer Self Assessment" questionnaires were developed for each employer group with accompanying keys and instructions.

WINTER, LAREN ROYCE. "An Expository Analysis of Selected Naturalists' Life Styles, Environmental Beliefs, and Contributions to Environmental Awareness." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

Throughout the 200 years of existence the United States has had a few individuals called naturalists who have influenced the environmental awareness of individuals. Through an analysis of six naturalists' writings and speeches the investigator determined the life style, environmental beliefs, and contributions to environmental awareness. From the naturalists' writings and speeches the investigator developed a synthesis of common elements related to each area.

John James Audubon became a full time ornithologist and naturalist after several bad business adventures. Audubon painted birds and studied their environment. Audubon's life was nature and he wanted to share the emotions and beauty surrounding each inhabitant. He wanted the beauty of the wilderness to be left undisturbed and the destruction of the environment stopped. Audubon wanted his work to rekindle a stewardship with the land.

John Wesley Powell studied science at every opportunity. He led the first two expeditions of the Colorado River and studied the arid land of the West. As the father of the United States Geological Survey he pushed for new land and water use control in the West. Powell gave to America a scientific understanding of the land and how to work with it.

John Muir grew into manhood wildly excited about the wonders of nature. He wandered throughout America studying the wilderness areas. Muir, considered the father of the National Park Service, pushed for preservation of all wilderness areas. His writings have given America hope for the wilderness as a place to go in search of a vision.

Gifford Pinchot became the father of the National Forest Service after studying silviculture in France. He worked with Theodore Roosevelt in introducing the issue of conservation into politics. Pinchot believed the forests should be a workshop for man and instituted the multiple use concept of wilderness areas.

Enos Mills moved to Longs Peak, Colorado, as a young man. He began a guide service and became known for his guiding and writing ability. Mills helped establish many national parks and was a major figure in the establishment of the National Park Service. Mills, a preservationist, wanted the wilderness to be available to future generations.

Aldo Leopold, the father of wildlife management, worked for the National Forest Service and was a college professor. He believed people should be partners with the land and not conquerors. Leopold wanted a land ethic developed in people thereby enabling them to live in harmony with the land. His scientific approach to viewing the environment has furthered America's awareness.

Muir and Mills were preservationists. Audubon, Powell, Pinchot, and Leopold were conservationists. Powell and Leopold studied the land scientifically. Muir, Mills, and Audubon viewed the land from an aesthetic viewpoint. Pinchot saw the environment as a workshop for man. All six men contributed to a better understanding and awareness of the environment.

## Educational Administration

FITZGERALD, THOMAS F. "A Study of Los Angeles County School Attendance Review Boards in Dealing With Student absenteeism." Published Doctor of Education Dissertation, University of Northern Colorado, 1977.

The purposes of this study were to determine the extent to which the school attendance review boards (SARBs) of Los Angeles County were providing for the utilization and coordination of community and

regional services to meet the needs of pupils with school attendance problems and to determine certain effects that this process has had on students' behavior.

In order to answer the questions, data were collected through investigating school and SARB records, writing ten case studies and interviewing school and SARB personnel.

The findings of the study were:

1. School district personnel were utilizing their identified available resources to a large extent.
2. The use of community and regional resources to increase students' school attendance was limited.
3. The extent of cooperation and coordination among the referral agencies needed to be improved.
4. Overall, the percentage of days absent from school following contact with SARB increased.
5. There was a decrease in the number of student problems when compared with the number of such problems reported prior to the SARB contact.
6. There was little effect on student educational achievement.

Although there was a limited use of community and regional resources and extensive utilization of school resources to meet the needs of pupils with school attendance problems, no overall increase in student attendance at school took place. There appeared to be some effect of the SARB process on reducing the number of problem referrals and no effect on student achievement. Nine recommendations were promulgated by the author.

JOHNSON, DEBORAH L. "A Comparative Analysis of non-Instructional Workloads of Graduate and Undergraduate Faculty Members." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

Identified non-instructional workloads of graduate and undergraduate faculty members at the University of Northern Colorado were not found to be significantly different to warrant discrepant teaching loads as recommended by the AAUP and the Carnegie Commission.

This study surveyed 125 randomly selected faculty members of a 562-member population at the University of Northern Colorado. Data collected by a mailed questionnaire provided estimates of the number of hours spent on specific non-instructional activities during the average academic quarter. Fifty-two (50%) were compared according to graduate undergraduate university classification and the level of class assignments resulting in statistically insignificant F values for both analyses of variance.

Graduate and undergraduate respondents estimated an average expenditure of 32 non-instructional hours per week, or 310 and 333 hours respectively per quarter. Graduate and undergraduate faculty differed in the amount of time expended for certain non-instructional activities such as: preparing publications; participating in post-doctoral research; attending doctoral, thesis, SECD, and university-wide meetings; and administering university affiliated programs. These activities were more frequently engaged in by graduate respondents. Undergraduate respondents, however, spent more time attending classes for professional development.

Increased public pressure for university faculty members to "teach more" initiated this exploratory study. The reader is cautioned that graduate undergraduate distinctions at the University of Northern Colorado may be misleading because of the assignment of undergraduate teaching loads to graduate faculty.

LATHROP, JAMES GLENN. "Agreement and Disagreement Between Boards of Education and Teachers Regarding What is Negotiable." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

The problem to which this study was directed was the nature and extent of agreement, or disagreement, between local boards of education and individual teachers, in selected school districts, regarding what is or is not negotiable under a collective bargaining agreement.

Regardless of geographical location or student enrollment, teacher and board responses indicated that the negotiation areas of Negotiation Procedures, District's Rights, Organizational Rights, Grievance Process, Teacher Assignments and Time, Curriculum, Teacher's Leaves, Fringe Benefits, and Teacher Compensation were considered negotiable items in many of these areas that were considered not negotiable by one group or the other. The general area of Policies for School Operations was the only area that was considered negotiable by teachers and not negotiable by board members.

In viewing teacher and board responses by geographical area, teachers and board members in all geographical regions were willing

to negotiate seven general areas, the exception being the area of Policies for School Operations. In addition, the area of Teacher Assignments and Time was considered non-negotiable by board members in the western geographical division and Curriculum was not negotiable to board members in the southeastern region.

Teacher and board responses by student enrollment size classification indicated the areas of Negotiation Procedures, Grievance Process, Teacher Assignments and Time, and Teachers' Leaves were negotiable to teachers and board members in all size classifications. The other six areas were negotiable to teachers but not negotiable to board members in one or more size classifications.

LOWE, RICHARD H. "A Study of the Purposes, Implementation, and Effects of the Rodda Act at California Community Colleges." Published Doctor of Education Dissertation, University of Northern Colorado, 1978.

The Rodda Act of 1971 (California Senate Bill 696---1971) mandated periodic evaluations of all contract and regular California community college instructors, changed the terms of probationary status, and redefined methods by which a college district could discipline instructors--such penalties as suspensions, losses of compensation, or dismissals. This Rodda Act reflected the desires of community college faculty groups, of fellow legislators, and of college trustees and administrators and was intended to achieve improved instruction in the community colleges.

Four years later, this study was devised to assess knowledge about the Rodda Act, to gain information on implementation and effects of this legislation, and to determine what purposes, specific procedures of implementation, and effects college personnel viewed as desirable. Three segments of community college personnel -- board presidents, college presidents, and faculty members -- were asked to participate by responding to a questionnaire. In this manner it was learned what purposes of the Rodda Act, specific procedures of implementation, and effects of the Act were perceived by members of the three groups. Their responses also revealed their attitudes toward the purposes, possible forms of implementation, and possible effects and enabled the researcher to compare these attitudes to discern the extent of agreement among the three groups in their perceptions and attitudes.

All groups were in favor of the required evaluations, although they all indicated a need for the standards for these evaluations to be more clearly defined in their college districts. Board presidents were generally uninformed about the powers granted boards by the Rodda Act and all groups needed to be better informed about the provisions of the Rodda Act for penalty and delayed penalty in disciplinary actions.

While they did not object to being evaluated, faculty members did not seem to be aware of reasons for or outcomes from these evaluations other than the one for which they are personally in control -- planning for self-improvement.

College presidents were more committed to feedback to instructors following evaluations than were faculty members, and college presidents tended to inflate faculty feelings of satisfaction with implementation and results of the evaluation process.

Most differences of perceptions occurred between college presidents and board presidents, especially of the specific procedures of implementation and of effects to be found on their campuses.

MARDOCK, MARVIN ELROY. "Student Opinions Concerning College Recruiting Practices." Published Doctor of Education Dissertation, University of Northern Colorado, 1977.

The purpose of this study was to determine which college student recruiting practices were regarded as effective by entering freshmen in private, church-related, liberal arts colleges in Central and Southern California.

The rankings for the following groups were compared to determine the degree of correlation:

- |                                                                                     |                                                                   |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1. admissions officers                                                              | -freshmen                                                         |
| 2. male freshmen                                                                    | -female freshmen                                                  |
| 3. freshmen 18 or younger                                                           | -freshmen older than 18                                           |
| 4. freshmen who were California residents                                           | -freshmen who were out-of-state residents                         |
| 5. freshmen who lived in rural areas or towns whose population was less than 25,000 | -freshmen who lived in cities whose population was 25,000 or more |
| 6. freshmen whose parents' annual income was \$15,000 or less                       | -freshmen whose parents' annual income was more than \$15,000     |

MERZ, ROBERT P. "Impact of Collective Bargaining on Organizational Characteristics of Higher Education." Published Doctor of Education dissertation, University of Northern Colorado, 1978.

Between September, 1969 and May 1976 faculties at 461 institutions of higher education had chosen a collective bargaining agent to represent them with the administration. Two viewpoints were expressed in the literature reacting to this movement. The first viewpoint was apprehensive, and speculated that the adversary character of collective bargaining would prove to be incompatible with the traditional faculty role in the institution. The second viewpoint was optimistic and offered expectations that bargaining may prove to be the means by which faculty members would be given a stronger and more appropriate role in the institution.

The purpose of this study was to determine whether vice-presidents for academic affairs and chairpersons of faculty senates in institutions affiliated with the American Federation of Teachers perceive the organizational climate of their institutions differently than do the vice-presidents for academic affairs and chairpersons of faculty senates in institutions without collective bargaining. To determine whether any difference existed the *Profile of Organizational Characteristics* developed by Rensis Likert was sent to these individuals at both types of institutions.

The instrument has seven categories of organizational variables. Respondents identified their institution on a continuum from System I, exploitive authoritative, to the other extreme of System IV, participative. The raw scores for each of the items on the entire instrument were added together to obtain a composite raw score for each respondent. In addition to this the raw scores for each of the seven categories of organizational variables were obtained in the same manner.

The distribution of the raw scores of vice-presidents from both types of institutions for the entire instrument and for the seven categories of organizational characteristics were compared to determine whether or not there was a statistically significant difference. The same comparisons were made with the distribution of raw scores of chairpersons. The Mann-Whitney U test was used to test for a statistically significant difference. The level of significance was set at 0.10.

In addition to this the composite raw scores of vice-presidents and chairpersons from the same institution were compared. After an analysis of the data it was found that there was no statistically significant difference between the two groups of vice-presidents or between the two groups of chairpersons. This was true when the scores for the entire instrument were compared, as well as when the scores for each of the seven categories of organizational variables were compared.

When the composite raw scores of vice-presidents and chairpersons from the same institution were compared there was no statistically significant difference. This was true for A.F.T. and non-union institutions.

The conclusion of this study, therefore, was that, in so far as the seven categories of organizational variables included in the *Profile of Organizational Characteristics* were concerned, there was no significant difference perceived by vice-presidents for academic affairs and chairpersons of faculty senates between A.F.T. institutions and non-union institutions.

OJELEYE, WILLIAM DISU OLA. "The Role of Secondary School Principals as Perceived by Secondary School Principals Education Officers and Secondary School Teachers in Kwara State, Nigeria." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

The purpose of this study was to determine whether there was a difference between the role of the principals as perceived by the principals and the education officers as a group and the principal's role as perceived by the teachers in Kwara State, Nigeria.

The study was conducted because of lack of research on the role of secondary principals in Kwara State, Nigeria. It was also conducted so as to be of possible use to the State in developing a job description for secondary principals.

An attempt to discover the perceptions of principals and education officers as a group and the secondary teachers as the second group toward the role of secondary school principals was undertaken by securing information through the use of a questionnaire. The respondents were asked to respond to each question by the use of one of the four scales stipulated on the questionnaire.

The Kolmogorov-Smirnov two-sample test and one-tailed test were used to test the following two specific questions:

1. Is there a difference between the perceptions of the principals and education officers as a group and the secondary teachers as the

second group on the role of secondary principals as stated under the statement of the problem for this study? If indeed there is, what is it?

2. Is there agreement between the perceptions of the principals and education officers as a group and the teachers as the second group on the role of secondary principals as stated under the statement of the problem? If there is, what is it?

The result of the statistical test on the two major questions on the four major task areas raised in the study showed that there was not a significant difference in the perceptions of the two groups used in the study.

However, looking at the result on each item, there were some disparities on some of them, but they were not significant.

RESCIGNO, RONALD CLIFFORD. "A Study of the Relationship Between Parent and Teacher Satisfaction with Their Involvement in a School's Decision-Making Process and Student Attitude Toward School." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

The purpose of this study was to investigate the relationships between parent and teacher satisfaction with their involvement in a school's decision-making process and student attitude toward school.

The data for this study were gathered by surveying randomly selected students and their parents and teachers in sixteen elementary schools in the Campbell Union School District in Campbell, California. The survey instruments were designed to elicit the degree of parent and teacher satisfaction in a school's decision-making process. A semantic differential scale was used to determine the student attitude toward school.

The general pattern of the satisfaction and attitude relationship between the three elements was found to be negative or inverse, even though the majority of the individual decision categories were not statistically significant at the .05 level. The finding is contrary to the current literature and the basic hypothesis this author proposed -- i.e., that satisfied parents, satisfied teachers, and happy students go together. In fact, the data suggest the opposite.

These overall negative findings would be supported by the assumption that parents, teachers, and students are motivated by self-interests; when the interests of the parents, teachers, and students do not coincide, one group would be satisfied or happy at the expense of the other. The finding of inverse relationships suggests a possible inherent conflict between each group's interests. The finding of no congruence among the variables also supports the self-interest theory.

From these findings the author drew inferences about the role of the school administrator relative to the competing interests of parents, teachers, and pupils. The author postulated that the school administrator is the person in the middle of the three groups who has the responsibility of reducing the conflict by balancing the competing self-interests. Failure on the part of the administrator to establish equilibrium among the three groups could cause greater conflict threatening the school social structure.

The results of the study showed that parents were generally satisfied with their involvement in a school's decision-making process and that students registered favorable student attitudes. Parents registered satisfaction with decision categories where their self-interests were not divergent with the substance of the decision.

An analysis of the decision areas where teachers reported greatest dissatisfaction showed that the negative attitude existed with district-wide policies or with decision made at the Board of Trustees level. Conversely, teachers showed satisfaction with decision items which were generally centered at the school level or were within the individual classroom.

The finding of teacher dissatisfaction with their involvement in determining faculty salaries through collective negotiations raises serious questions regarding the original intent of collective bargaining. This study found that teacher dissatisfaction with their involvement in negotiations is contrary to the spoken intent of the law. This finding suggests that the collective bargaining process may not produce decisions or involvement that will satisfy teachers.

Contrary to conventional educational wisdom, these findings, and other data presented in the study, lead to speculation about the actual importance of parent and teacher involvement in a school's decision-making process. If the findings of this study can be validated in other educational settings, the educational theorists and practitioners will have to reform their current thinking regarding teacher and parent involvement in the decision-making process as recommended by the author.

SCROFANI, EMANUEL. "Academic Achievement and Student Attitudes in Selected California Early Childhood Education Schools." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

The intent of this research was to study the effects of the California Early Childhood Education (ECE) program on participating youngsters as related to academic achievement in reading and mathematics. A second intent of this study was to assess changes in attitude of ECE youngsters toward reading, mathematics and school.

The analysis of the data led to the following conclusions:

1. The ECE program has a significantly positive effect on the academic achievement scores in the subjects of reading and mathematics for first-year ECE student participants.

2. The attitudes of first-year ECE student participants were not significantly different than those found in second and third grade primary students in a non-ECE program.

## Elementary Education and Reading

LAWIN, PRISCILLA. "A Comparison of the Readability of Six Versions of the Bible as Measured by the Cloze Procedure." Published Doctor of Education dissertation, University of Northern Colorado, 1978.

The purpose of this study was to compare the readability of six versions of the Bible to determine which version or versions might be appropriate for use with eighth grade students. The major null hypothesis tested was that there would be no significant difference in the mean scores attained by eighth grade students on six parallel cloze tests based on six selected versions of the Bible. The versions used included: The King James Version (RSV), New English Bible (NEB), Good News Bible (GNB), Holy Bible: An American Translation (BECK), The Living Bible Paraphrased (LB).

The study produced the following implications:

1. In terms of readability, any of the modern versions would be more appropriate for classroom use than the KJV.

2. Because the difference in readability among the modern versions is slight, other factors such as literary style or theological preference need not be sacrificed in the interest of finding "the most readable Bible."

3. Because the level of readability differs from one passage to another within the same version, it may be desirable to have several versions available to the students.

4. If it is imperative to choose the version with the lowest readability level for classroom use, the GNB should be selected.

5. Accepted teaching techniques for helping students read in content area materials should be used to help students develop skill in comprehending both narrative and expository portions of the Bible.

6. The Bible, in a modern translation, is an appropriate text for classroom use.

SIMMONS, JANICE L. "The Relationship Between an Instructional Level in Spelling and the Instructional Level in Reading Among Elementary School Children." Published Doctor of Education Dissertation, University of Northern Colorado, 1978.

The purpose of this study was to investigate the relationship of the instructional level in reading to an instructional level in spelling. Specifically, this investigation sought answers to the following questions:

1. Does a relationship exist between an instructional level in spelling and the instructional level in reading?

2. Can a child's instructional level in spelling be predicted with some degree of confidence by knowledge of the instructional level in reading?

A total of fifty children, ten in each of grades two through six, comprised the sample. The instructional level in spelling was determined for each child by means of a spelling inventory constructed by the investigator. The inventory consisted of spelling tests for grade levels two through eight. The highest test level at which from 75 to 88 percent of the words were correctly spelled was designated as the instructional level. The instructional level in reading was determined for each child by means of the word recognition test of the Standard Reading Inventory, and was designated as the level at which testing was terminated minus one level.

The results of the spelling inventory tests and the word recognition tests were tabulated as grade placement scores indicating the instructional levels in reading and spelling for each individual. The correlation coefficient was computed for the instructional grade level scores in reading and spelling. A t-test for dependent variables was used to determine the significance of the correlation between the instructional level in spelling and the instructional level in reading.

The correlation coefficient for instructional grade level scores in reading and spelling was found to be .9176. A t-test for significance of the correlation yielded a t-value of 15.993. The correlation was found to be significant, with  $p < .0005$ . In 50 percent of the cases tested, the instructional level in spelling was found to be one grade level below the instructional level in reading.

## English

PRICE, HARRIET ANN. "Ford's Impressionistic Techniques in His Fiction, *The Good Soldier and Parade's End*, and in His Nonfiction, *Thus to Revisit, Joseph Conrad, and Portraits From Life*." Published Doctor of Philosophy dissertation, University of Northern Colorado, 1977.

Critics continue to praise Ford's fiction *The Good Soldier*, and *Parade's End*, and they continue to ignore or condemn his nonfiction reminiscences. They write of Ford's inaccuracy in these books, an inaccuracy which invalidates them. In his essays on the writing of fiction, Ford discusses his basic impressionistic techniques--his focusing on an "affair"; his use of very limited points of view, his breaking up of chronology; his making clear both the appearance of the characters, the impressions the characters make, and the character's inner feelings; his emphasis on inconclusiveness, and his attempt to involve the reader.

Examining Ford's nonfiction reminiscences, one finds these same impressionistic techniques, techniques which Ford finds essential in his attempt to represent his subject realistically. Instead of complaining about Ford's inaccurate writing in these reminiscences, one can appreciate the books if one understands the function of the reminiscence narrators, a function which parallels the role of the third-person limited reflectors in *Parade's End*, and the very limited self-conscious narrator in *The Good Soldier*. As in the fiction, particularly in *The Good Soldier*, the narrator's thoughts determine the form of the book; indeed the narrator is the main subject in each book. In *Portraits From Life*, the narrator is quite intoxicated by his impressions. Those that condemn *Portraits From Life* and the other reminiscences for inaccuracy and gross exaggeration fail to understand that they are the impressions of one man, the narrator, and as such they have their own validity. The reminiscences are an unusual form of realism, a form which is grounded in Ford's understanding that there is no portrait without a painter, an observer, for the two are inextricably connected.

## Geography

BARTON, JAMES HENRY. "A Risk Model for Dry-land Wheat Production in Eastern Colorado." Published Doctor of Arts dissertation, University of Northern Colorado, 1977.

This dissertation examines the patterns of dry-land, winter wheat failure in twenty-six eastern Colorado counties between 1946 and 1973. A combination of factor analysis and multiple linear regression is used to develop models which identify those significant climatic and edaphic variables related to the wheat harvest. Effects of technology are examined by testing for differences in failure per unit of climatic variation over the study period. Subregional differences in climatic and edaphic factors are statistically identified and mapped, and a comprehensive model is developed which integrates the effects of climate, soils, and technology.

The precipitation and temperature of the previous year are shown to be the most significant climatic variables, followed by soil moisture-holding capacity and the total precipitation in the spring of the crop year. There is little change in percent of wheat harvested when critical climatic variables remain constant. The validity of the comprehensive model as a reliable predictor of wheat harvest is demonstrated by applying the model to cases not involved in its derivation.

SEBASTIAN, GLENN R. "The Frequency and Selection Process of Crop Combinations in Pecan Orchards of Mobile and Baldwin Counties, Alabama." Published Doctor of Arts dissertation, University of Northern Colorado, 1977.

The frequency and selection of crop combinations within pecan

orchards of the Gulf Coast Counties of Alabama combine to create a unique agricultural system. What factors influence the selection process of these crop combinations, creating orderly patterns from year to year? To show significance in the frequency and selection processes, twelve selection variables and thirteen crops were chosen through interviews with commercial growers and county extension agents. Four statistical analyses were applied to the data: Cluster Analysis, Principal Components Analysis, Factor Analysis, and Discriminant Analysis. The sample was chosen from a population of 400 commercial growers by using a random sample number list. Each sample site was visited and the growers were interviewed concerning the frequency and selection variables as outlined in the questionnaire.

Results from the interviews suggest that the variables are highly independent of one another. When the data were subjected to a Discriminant Analysis, distinguishing the pecan orchards in Mobile County from those in Baldwin County, several significant distributional patterns became evident. Row crops are more popular in rural Baldwin County, while cattle and grass combinations are more numerous in Mobile County.

With the advent of high-density pecan varieties, the practice of double cropping and intercropping is disappearing. The high cost of sprays, fertilizers and machinery is prohibiting many farmers from growing pecans, devoting their time exclusively to row crops or cattle.

## Health and Physical Education

SNYDER, GLENN C. "The Effects of a Values Enhancement Series in the Affective Domain of Physical Activity on the Performance of Students on the Personal Orientation Inventory." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

The problem of this study was to measure the effect of the "Snyder Values Enhancement Series" on students taking physical activity classes at Bluffton College, Bluffton, Ohio.

At least one experimental or control group was found to be significantly different between pre and post scores on the twelve scales of the POI at the .05 level of confidence. The post POI scores of the experimental groups did not reflect a significant number of changes to indicate an increase in the direction of self-actualization over the control groups. The experimental groups achieved fifteen statistically significant Wilcoxon z-Tests between pre and post scores. Thus, the "Values Enhancement Series" alone cannot account for the changes between pre and post test scores of the experimental and control groups; participation in sport skills courses which meet the needs of the participants also resulted in changes in attitudes and values as measured by the pre and post POI scores.

A positive correlation was achieved for the total of all experimental groups at the .05 level of confidence thus suggesting that the Snyder-Thurstone Scale could be used as a measuring instrument to evaluate subject attitudes toward the "Values Enhancement Series," as well as the Inner Directed scale score of the POI.

## Mathematics

DELEGARD, VIRGIL R. "Linear and Non-Linear Techniques for Accelerating Convergence in Sequences and Series." Published Doctor of Arts dissertation, University of Northern Colorado, 1977.

In this paper the author explores numerical methods for accelerating the convergence of slowly convergent sequences and series. Some of these methods can be used with hand-held calculators, others need the computational power of a larger computer. All the methods use only the first few terms of the original series, a general expression for the  $n$ th term is not necessary. One technique is to fit a polynomial to a set of partial sums and then extrapolate the sum. The other methods involve transforming the original series into a new series that under certain conditions has superior summing properties. Generally, the transformations can be divided into linear and non-linear types depending on how the terms of the original series are combined to form the terms of the transformed series.

In chapter I, a linear method called Euler's algorithm is developed. This method replaces the original series by a series with the same sum, but possibly better summing characteristics. It is most effective at accelerating convergence with slowly converging alternating series, and not at all effective with all negative or all positive series. This method can be used with a hand held calculator. Also, in this chapter a

generalized Euler algorithm is developed to be used with a high speed computer.

In Chapter II, several non-linear methods are developed. The first one fits a polynomial to a set of points in the form  $(1/j, S(j))$  and extrapolates to the sum  $(0, S)$ . Secondly, a sequence-to-sequence transformation called the  $k$ th order epsilon algorithm, is most effective with alternating series or sequences oscillating about their limit. An algorithm, called the rho algorithm, is mentioned that is more effective with all positive or all negative series and with monotonic sequences.

In Chapter III, the summing methods developed in Chapters I and II are used to sum divergent series and asymptotic series. Throughout the paper several examples are given for each technique.

## Psychology Counseling and Guidance

AMMANN, LYNNE A. "A Comparative Analysis of Personality, Self-Concept, and Androgyny Measures of N.O.W. Members in Kansas City." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

The purpose of the study was to investigate the relationship between membership in N.O.W. (National Organization for Women) and selected personality, self-concept, and androgynous variables. Packets containing (1) the California Psychological Inventory, (2) the Personal Orientation Inventory, (3) the Bem Sex-Role Inventory, and (4) a 25-item questionnaire eliciting biographical data were mailed to a random sample of 125 members of the four chartered chapters (Greater Kansas City, Northland, Urban, and Johnson-Wyandotte) of N.O.W. in greater Kansas City. The 45 usable response sets were sorted by chapter, and the three tests scored for nine variables: (1) C.P.I. subscales Do, Cs, Gi, Cm, Wb, Fe; (2) P.O.I. ratio scores  $T_1$ ,  $T_2$ , and OI; and the B.S.R.I. Androgyny score. The results were analyzed by means of multiple discriminant analysis (Wilks' lambda) for significant differences among groups ( $p < .05$ ). A univariate  $F$  test was used to rank the discriminants in order of their importance. The questionnaire responses were tabulated for the whole group and for each chapter and then converted to percentages for presentation. No significant differences ( $p < .05$ ) existed among chapter scores on the test variables studied. No significant differences ( $p < .05$ ) were found between the sample and the norm group of the variables studied. Questionnaire results indicated that N.O.W. members in Kansas City tended to be female (93%), married (49%), under 35 (62%), white (93%), and Protestant (44%) or atheist/agnostic (40%). They also were financially comfortable (\$15,000 year family income for 63% of S's), working (80%), childless (53%), and well-educated (100% had some college, 76% had earned at least one degree). S's were better educated than most of their mothers and fathers. Seventy-one percent of S's were employed at the professional or managerial level as compared with 23% of their mothers and 60% of their fathers. Two percent of the S's had been exclusively homemakers, whereas 62% of their mothers had no other occupation. S's reported that 0% of fathers and spouses were homemakers. S's admired mothers (33%) more than fathers (18%), identified with mothers (40%) more than fathers (27%), and were more influenced by mothers than fathers in their choice of occupation (18% versus 4%) and in their pursuit of education (42% versus 20%) and in their pursuit of education (42% versus 20%). Fully 47% of S's indicated themselves as being solely responsible for their choices of occupation. Although a majority of S's (58%) joined N.O.W. as a result of their own interest, only 16% of the sample reported spending ten or more hours per month on N.O.W. activities. Most S's seemed to feel that their participation in N.O.W. has had either a positive or neutral effect on their lives. The N.O.W. issues chosen as being most crucial to their lives were employment (87%), law and politics (58%), health services for women (33%) and money-related issues (33%). N.O.W. members in Kansas City appear to be more self-actualizing than the norm group of the P.O.I. and tend to be slightly more dominant and less feminine according to the C.P.I., but not significantly so. Further study is necessary to determine whether the findings would be the same with a larger sample or with one composed of a mixture of women's liberation groups.

ANTON, JACQUELINE EVE KRAMER. "The Relationship Between Trait Anxiety and Parent-Child Interactions in Upper Elementary School Children." Published Doctor of Education dissertation, University of Northern Colorado, 1978.

The purpose of this study was to examine the relationship between trait anxiety and parent-child interactions to determine if any direction might be given to the general area of classroom underachievement.

The subjects for this study were 75 fourth, fifth and sixth grade boys and girls enrolled in a university-affiliated laboratory school. All subjects were administered two self-report instruments by the researcher. The A-trait scale of the *State Trait Anxiety Inventory for Children* (STAIC), developed by C.D. Spielberger, was administered along with the *Brontfenbrenner Parent Behavior Questionnaire* (BPB), which assesses the child's perceptions of parent-child interactions on fifteen variables, to all 75 subjects regarding their mothers and fathers.

Two primary research questions were posed in this study:

1. Will there be a relationship between trait anxiety for boys and for girls and any of the fifteen BPB parent-child interaction dimensions as perceived for mothers?
2. Will there be a relationship between trait anxiety for boys and girls and any of the BPB parent-child interaction dimensions as perceived for fathers?

The findings and conclusions of this study indicated that:

1. Significant low positive correlations between trait anxiety and expressive rejection, affective punishment and indulgence were found for boys with mothers. A negative relationship between trait anxiety and affiliative companionship for boys and mothers was found.
2. A significant low and positive correlation between trait anxiety and indulgence was found for girls with mothers.
3. No significant relationship between trait anxiety and any perceived dimension of parent-child interactions was found for boys and girls with fathers.
4. There was no significant differences between the sample and norm groups' trait anxiety scores.
5. There were significant sex-related differences in trait anxiety scores with girls higher than boys.
6. Trait anxiety scores did not vary according to grade level.
7. "Loving" and "Punishing" factors were consistently found in all four combinations of group (male-mothers; male-father; female-mother; female-father) on a factor analysis of the BPB.

BAUSERMAN, DEBORAH NYLEN "Intrasensory Integration and Memory Abilities Among Subgroups of Average and Severely Disabled Readers." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

Intrasensory integration and memory abilities were investigated in 67 male and female fifth and sixth grade average (18) and severely disabled readers (49). Subjects were classified according to a slightly modified version of the Boder Diagnostic Screening Procedure which distinguishes among average and three types of dyslexic readers: dysphonetic (visible), dyseidetic (audile) and alexic (combined). Results of the intrasensory integration task indicated that average and dyseidetic readers were better able than dysphonetic and alexic readers to match purely temporal information. When order of difficulty among the spatial and temporal tasks was analyzed, dyseidetic readers demonstrated greater difficulty with spatial information whereas dysphonetic and alexic readers demonstrated greater difficulty with temporal information. Memory abilities, as measured by recall in the Overt Condition in a free recall test, were better for average as opposed to the total sample of severely disabled readers. Elaborative rehearsal strategies as opposed to nonelaborative rehearsal strategies (sheer repetition) were found to discriminate between average and each of the three subgroups of severely disabled readers. The organizational ability represented in elaborative rehearsal strategies was the hypothesized mechanism responsible for effective temporal matching ability, long-term memory and improved recall which are psychological processes basic to reading.

KRAMER, JOHN KARL "The Relationship Between Telepathic Ability and Susceptibility to Psychosomatic Disorders." Published Doctor of Education dissertation, University of Northern Colorado, 1978.

Two hundred college undergraduates were drawn from three universities, two in Indiana and one in Colorado. The 106 males and 94 females were group-tested during a regular class session for susceptibility to psychosomatic disorders by an instrument designed especially for this study. During the same class meeting, the subjects were given a group ESP (telepathy) test employing a deck of Zener cards and using Basic Technique for administration. Some subjects were tested during daylight hours, while the others were tested at night.

The resulting telepathy and psychosomatic stress data were analyzed for statistically significant mean and/or variance differences between the sexes, between subjects tested during the day and those tested at night, and among the three university groupings. In addition, the data were checked for significant effects of variable interaction.

Twenty-two subjects, 12 males and 10 females, were identified as significantly ( $p < .01$ ) high-scoring in the telepathy testing. As determined by the chi-square statistic, the proportion of the high-scoring subjects produced by each university was not outside chance expectation ( $p > .05$ ). An analysis of the interrater variances between the significant telepathy scorers and the chance-scoring subjects indicated the high-scoring seemed not to vary about their mean scores by notably more or less than did the others ( $F_{2,177} = 0.851$ ,  $p > .05$ ).

Significant differences were found when the telepathy results were grouped by sex and time of testing. Male subjects tested during the day produced a significantly lower mean score than did males tested at night ( $p < .02$ ) and significantly lower than the female subjects tested during the day ( $p < .02$ ). Both males tested at night and males tested during the day produced significantly lower ( $p < .01$ ,  $p < .05$ ) psychosomatic stress scores than did females tested at night. All other grouped mean and variance comparisons by sex, testing time, or university location were non-significant ( $p > .05$ ).

Finally, a study of the possible relationship between telepathic ability and susceptibility to psychosomatic problems was made employing the Wilcoxon rank sum test. The resulting z-score of 1.909 has an associated probability of .0564. This level of probability seemed neither to support nor deny the existence of such a relationship.

It was concluded that while university location, sex of the subject, or testing time had no significant effects on the telepathy or psychosomatic inventory scores, the interaction of subject, sex and testing time did seem to have significant effects within certain groupings on mean scores and/or variances. It was also concluded that further examination of the hypothesized relationship between telepathy and psychosomatic suffering is needed to clarify the somewhat ambiguous Wilcoxon result of this study.

KRUCKENBERG, JOANNA M. "Characteristics of Homicide and Its Prevention." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

The purpose of this study was to provide a more comprehensive description of homicides for the following objectives: (1) to give counselors more information to assess the seriousness of homicide threats, and (2) to be used as the basis for the creation of prevention programs. Through a review of the existing literature and the use of the Homicide Enforcement Investigation Data Index (HEIDI) for all murders in Wichita, Kansas for the years 1970 to 1975, this information was gathered. Additionally, the literature review and the case study method were utilized to examine undercontrolled and overcontrolled aggressive murderers. Conclusions were drawn as to what types of murder prevention programs would be the most likely to be successful.

The results of the HEIDI information indicated that half of the victims, offenders, reporting persons and residents of the city were under the age of 34 but the largest grouping of residents was children under 15 while the largest grouping of the other groups fell within the ages of 20 to 34. Many more males than females were involved as suspects, victims and reporting persons. The race of the majority of the suspects, victims, reporting persons and residents was white but a sizeable percent of those involved in homicide were non-white. The income level of the suspects and reporting persons was well below the median income for the city.

The cross tabulation data indicated a number of similarities and contrasts to the characteristics of homicide nationally and internationally. No relationship was found between weapon, alcohol and drug usage and the increasing homicide rate. The examination of the census data resulted in an area where homicides are most prevalent.

The census history data supported the idea that the homicide offenders were both undercontrolled and overcontrolled and that the overcontrolled committed the most violent murders.

A number of primary, secondary and tertiary suggestions were made for the prevention of homicide, including a Lethality Scale for use by counselors in evaluating the possibility of homicide by a client.

N'DURU, SASI S. "Humanistic Psychology and Education: Implications for Teaching in The Gambia." Published Doctor of Education dissertation, University of Northern Colorado, 1978.

The problem for investigation was to study, analyze, and synthesize humanistic, psychological and educational philosophy, theory, and practice. The purpose of this study was to formulate a humanistic psychological and educational position that could be presented and considered for adoption by the education faculty at Yundum College and the elementary school teachers in The Gambia.

A review was made of the historical foundation of humanistic

psychology and education. In researching the literature of humanists, certain principles were basic to all of the writings. Several humanistic principles were then established with sufficient quotations to support each of the principles.

The historical and philosophical perspectives of humanistic psychology and education clearly indicated a relationship between humanistic philosophy, theory and practice. A curriculum model was developed from the assumptions of humanistic psychology and education and presented for possible application to The Gambia education system. The content of the program was suggestive, not prescriptive. Its sequence was planned but not mandatory. The teacher would select materials to serve best the needs of the individual or group he was trying to help.

The program also included a discussion of discipline in a humanistically focused education. Evaluation was a continuous process throughout the curriculum. A humanistic view of evaluation suggested self-analysis and conferences with the teacher. A self-assessment device for teachers was included in the appendix.

SCHNEIDER, GARY B. "A Preliminary Validation Study of the Kinetic School Drawing." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

This study was designed to provide preliminary validation information for the Kinetic School Drawing (KSD). It was suggested that if valid, the KSD would be a useful tool in assessment of the child's coping with the school environment, and the content of the KSD would be more useful to the school psychologist than the commonly used Kinetic Family Drawing (KFD). Children referred for psychometric assessment were the population most appropriate for this instrument, so subjects were comprised of all elementary school students referred to a school psychologist during one school year. The school psychologist, who served as examiner, rated the severity of school problems on a nine point scale and the severity of family problems on another nine point scale. These ratings preceded psychometric evaluation and were based on interviews with parents and with school personnel. A KSD and KFD were obtained from each subject using standardized instructions and conditions, along with age and individually administered intelligence test score data. A score for each drawing was obtained by summation of signs present from a list of signs generally reputed to have negative implications. Multiple regression procedures were employed in prediction of school problem ratings and prediction of family problem ratings by the KSD score and other variables. The full model involving the KSD score, KFD score, age, and IQ significantly predicted both school and family ratings as compared to chance expectations at the five percent confidence level. However, further examination of the data demonstrated neither the KSD score nor KFD score added significantly to the level of prediction achieved by age and IQ alone. Additionally, the relatively small RSQ values accounted for by the full model in predicting the school rating (.0990) and in predicting the family rating (.0688) suggested other important unaccounted variables influenced the dependent variables. As less than ten percent of the variance was accounted for, caution was recommended for clinical employment of the full model for prediction of student problem severity. While the overall results of this study offered little support for the KSD as a diagnostic tool for the school psychologist, it could not conversely be concluded that the KSD had no utility for the school psychologist.

THOMPSON, KENT "Relationship of Nutritional Intake and Mental Diagnostic Classification of Mental Health Clients to a Standardized Minimum Intake Requirement." Published Doctor of Education dissertation, University of Northern Colorado, 1978.

The purpose of this study was to analyze the dietary intake patterns of mental health center outpatient clients and compare these daily nutritional intake levels with recommended daily nutritional levels. It was also the intent of this study to compare and contrast the daily nutritional intake levels of three psychiatric diagnostic groups of clients. In order to accomplish these purposes, one subject sample of 64 outpatient clients was used. Of the 64 clients, 24 were diagnosed as neurotic, 18 were diagnosed as personality disorders, and 22 diagnosed as situational disorders.

In the study, a self report nutritional survey was given to each of the 64 clients and later analyzed to assess nutrient composition. The results of the dietary analysis yield mean daily totals in 12 specific nutrient categories. The study then focused on two research hypotheses. In the first hypothesis the 12 daily nutrient total of the entire group were

compared with the suggested intake levels set forth by the Recommended Dietary Allowances. In the second hypothesis the 12 nutrient intake levels of the three diagnostic sub-groups were compared with each other.

The findings of the study revealed that by comparing group means with the RDA levels positive and significant results were obtained in 10 of the 12 categories. Significant and negative results were found in the other two categories. Another finding of the study was that differences exist between personality disorder, neurotic disorder, and transient disorder diagnostic groups in the fat and sodium categories.

## SCHOOL OF EDUCATIONAL CHANGE AND DEVELOPMENT

GUNN, ALEX M., JR. "A Model to Manage Student Conflict and to Reduce School Crisis and Violence." Published Doctor of Education Project in lieu of dissertation, University of Northern Colorado, 1977.

This Project in lieu of dissertation was an attempt to be representative of the efforts of the California State Department of Education to assist school districts, communities and other agencies in planning, developing and implementing programs designed to prevent violence in the schools, and was designed for use by: School districts experiencing an increase in the number of violent acts on or about school property; agency personnel who recognize the social and economic implications of violence in the community; parents, students and other interested citizens who are most affected by acts of violence either as active participants or as victims.

The primary goals of the diagnostic-prescriptive approach to problem solving were to:

1. determine where the school district was along the conflict and violence continuum;
2. evaluate the capacity of the district or the school to deal with and resolve its own problems; and
3. set program goals which could later be translated into program activities.

The main assumption of this project was that whatever the cause of conflict and violence in California schools, student conflict and school crisis and violence can be prevented through management approaches.

Included in this project were three preventative models based upon assumptions relevant to the prevention of violence in schools. To facilitate the successful implementation of any of the models, an inter-agency approach to crime and conflict management was described followed by a detailed explanation as to the necessity for such approach.

Finally, a further framework for a crisis response plan was anticipated for use in the event prevention, the desired posture, was not possible. The planning for such a response is imperative as it recognizes the unpredictable nature of human behavior, and it accepts the moral obligation of providing a safe and positive environment for learning.

JOHNSON, ERIE V. "Area Vocational School Planning: Procedures, Processes and Concerns for the State of Colorado." Published Project in lieu of dissertation, University of Northern Colorado, 1977.

This project was motivated by a desire to put in print a document which provided a statement on planning an area vocational school. The project established that a planning document which addressed issues relating to area vocational school development would be beneficial to those agencies making application, to those approving or disapproving the application, and eventually to the students receiving vocational instruction. The writer sought to examine those procedures, processes and concerns that relate to planning an area vocational school in Colorado. The major purpose was to provide for others a planning document which fully explains the planning steps necessary to develop an area vocational school.

Findings indicate that in fact there are limited documents and articles in print that will assist individuals in the planning for an area vocational school. Secondly, the findings indicate some states use similar application procedures and that the data needed for approval in Colorado may be universal.

Lastly, the findings indicate that many states do not use an application process for area vocational school designation and thus politics play a major role in these states.

KRAJICEK, MARILYN J. "The Presence of Congenital Middle Ear Anomalies and Otitis Media in the Down's Syndrome Population." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

It is known that middle ear disease exists among individuals with Down's Syndrome. The incidence of this disorder, the type (s) and degree of middle ear disorders have not, however, been determined. The impact of middle ear disorders and their concomitant conductive hearing losses on language development and learning has long been known. The degree of impact on this population has not been investigated.

The intent of this study was to determine the types of audiological and otological problems present in a non-institutionalized group of Down's persons and to assess from a preventive point of view whether or not the persons were receiving adequate treatment. Middle ear anomalies were identified and described.

The age distribution of the mothers at the time of the birth of the Down's child ranged from 15 to over 45 years. Forty-five mothers were under the age of 30 years at the time of the birth.

The prevalence of middle ear pathology described as abnormal tympanic membranes in one or both ears was equal to 60 percent.

Forty-one percent of the population were judged to suffer from middle ear anomalies resulting in a permanent hearing loss congenital in nature. These anomalies were masked by the presence of otitis media.

Serous otitis media was the most common cause of a conductive hearing loss in the Down's population.

The prevalence of dry versus moist cerumen in the Denver Study was not significant. Moist cerumen was noted in 50.5 percent of the population and dry cerumen in 49.5 percent of the Down's population.

Surgical middle ear exploration identified abnormalities of the stapes, incus and facial nerve. The anomalies observed included the abnormal appearance of the stapes and in some cases it was fixed to the oval window leading into the cochlea. There was an elongation of the neck of the stapes and the stapes appeared abnormal in form. The facial nerve was noted to be outside its usual bony canal and overlying the stapes in two cases. Whether or not surgical intervention will improve the hearing to within a normal range remains to be seen.

LYON, RUSSELL E. "A Navy Community College System." Published Doctor of Education Project in lieu of a dissertation, University of Northern Colorado, 1978.

This project provides a model for the establishment of a community college system within the United States Navy. This particular college system must attempt to meet the needs of the Navy personnel who will be its student body. It must also meet the needs of the Navy while having an awareness of the traditions of American higher education.

The writer holds the rank of Commander in the U.S. Naval Reserve and has previously participated in Naval Education and Training studies involving the Naval Reserve Officer Training Corps and the Navy Campus of Achievement.

A majority of the study data was gathered through on-site observation and interviews of individuals, agencies, commands, and support activities of the Navy. Final recommendations, as set forth in the model, were established through a systems analysis approach.

A list of topics considered relevant to the scope of planning a community college for Navy personnel was developed. Those topics considered most important include:

Objectives, Clientele needs, Program content, Support services, Delivery systems, Organizational structure, Staffing, "Start-up" funding, Evaluation, and On-going planning mechanisms.

The results are for the U.S. Navy to consider when organizing a Navy Community College within its structure. The proposed model provides a mission, assignment of functions, administrative organization, staffing and staff assignments, program delineation, and "start-up" budget guidelines. Through the awarding of the Associate Degree in Applied Science in a variety of fields synonymous with the Navy specialty areas, the Navy Community College will provide relevant and meaningful programs of career education for its personnel.

The Navy needs to show a trend toward placing greater value on its "people" programs rather than its hardware programs. This emphasis will improve the educational and career-related incentive for recruitment and retention of high quality Navy personnel. The Navy Community College system could indeed be a valuable "people" program.

SIMONS, CAROL EUGENE. "A Manual for Administration of Special Education Programs." Doctor of Education Project in lieu of a dissertation, University of Northern Colorado, 1977.

This manual is offered in the hope that it may be of assistance in the administration of programs of special education by helping provide information to generate alternatives for decision-making in the day to day operation of these programs.

The Manual consists of information, procedures, and suggestions which an administrator might need or find of value when faced with the responsibilities involved in the administration of a school system which provides special education services to handicapped children and youth.

Included in the Manual are suggestions for certain basic "tools" for the administrator. Determining the special education needs within an area is stressed. The basic special education programs are discussed. These include: speech, learning disabilities, educable mentally retarded, physical and health impairments, behavioral and emotional disorders, hearing impaired and deaf, audiology services, visually handicapped, trainable mentally retarded, and gifted. Examples of other special education programs are also given.

Sample administrative procedures are offered. Some specific implications of 94-142 are included, and there are some examples of sample forms.

## SCIENCE EDUCATION

BASMAJIAN, RONALD K. "The Relationship Between Piagetian Cognitive Maturity and Scholastic Success of Students Enrolled in an Audio-Tutorial Biology Program." Published Doctor of Education dissertation, University of Northern Colorado, 1978.

The purpose of this study was to determine how the level of Piagetian maturity of junior college students enrolled in a audio-tutorial biology course related to their ability to gain science knowledge, develop critical thinking ability, and attain laboratory skills. Data were collected from a total of 83 students making up the population for this study. All were enrolled in Biology 1 AT, which is a one semester first year survey course in biological science offered at Merced College, Merced, California.

All students were administered the following tests at the beginning of the study: (1) the *Burney Logical Reasoning Test* to determine Piagetian cognitive level, and (2) the *Cooperative English Test* to determine reading ability level of all students. Pre and post-tests were given which consisted of the following criterion instruments: (1) the *Nelson Biology Test* to determine gain in knowledge of subject matter; (2) the *Watson-Glaser Critical Thinking Appraisal* to determine the level of critical thinking ability; and (3) an investigator-constructed *Laboratory Skills Test* to determine the ability of students to function within a laboratory environment.

Findings obtained indicate statistically significant differences between formal and non-formal operational students as to gain in knowledge of subject matter, critical thinking ability, and attainment of laboratory skills. These findings, along with those obtained from testing variables associated with subhypotheses, led to the following conclusions: (1) formal operational students achieve at a significantly higher level than do non-formal operational students; (2) although results indicate that male students did consistently achieve at a higher level than females, gender did not significantly affect the level of achievement; (3) age was not a significant factor in the level of achievement attained by students in either cognitive group; (4) reading ability level relates significantly to the level of achievement attained by students in both cognitive groups; (5) Biology 1 AT was found to be more effective for formal operational students in developing gains in their knowledge of subject matter and laboratory skills than for the non-formal operational students; and (6) the course was found to be ineffective in developing the critical thinking abilities of both formal and non-formal operational student groups.

GOODRUM, DENIS. "A Study to Investigate the Correlations Between an Adolescent's Creativity, Right and Left Hemispheric Thinking and Piagetian Cognitive Development." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

Much research has occurred in the areas of creativity, right and left hemispheric thinking and Piagetian theory, but little has been done in relating together the common aspects of each. Ornstein has outlined

the differences between right and left hemispheric thinking. His description of right hemispheric thinking is similar to Maslow's idea of primary creativity. Left hemispheric thinking has many of the characteristics of Piaget's logical operations.

1. This study attempts to determine what relationships exist between an adolescent's creativity, his/her right and left hemispheric thinking and Piagetian cognitive development.

There is *no* statistical significant relationship between the sum of the creativity measures and:

- a. right hemispheric thinking measures
- b. left hemispheric thinking measures
- c. Piagetian development.

2. There is a statistical significant relationship between Piagetian development and:

- a. the sum of the left hemispheric thinking measures. (the correlation coefficients are  $r_A = 0.57$ ,  $r_B = 0.54$ ,  $r_C = 0.49$ )
- b. the sum of the right hemispheric thinking measures for Schools 'A' and 'B' but not for School 'C'. (the correlation coefficients are  $r_A = 0.34$ ,  $r_B = 0.29$ ,  $r_C = 0.15$ ).

3. There is *no* statistically significant relationship between an adolescent's performance on the Torque Test of cerebral dominance and

- a. the sum of the right hemispheric thinking measures
- b. the sum of the left hemispheric thinking measures
- c. the sum of the creativity measures
- d. Piagetian development.
4. The relationship between the academic grade of the student and
  - a. creativity is not statistically significant
  - b. right hemispheric thinking is statistically significant only for School 'C'
  - c. left hemispheric thinking is statistically significant
  - d. performance on the Torque Test is not statistically significant.
5. The relationship between the sex of the student and
  - a. left hemispheric thinking measures is not statistically significant
  - b. right hemispheric thinking measures is statistically significant only for Schools 'A' and 'B'. For these schools the means of the male scores are higher than the females.
  - c. creativity measures is statistically significant for School 'C'. In this school the means of the females' scores are higher than the males.

MARCANTONIO, CLEMENT. "A Profile Analysis of Selected Demographic and Personality Characteristics of Divorced Parties." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

The purpose of this study was to determine if selected demographic and personality characteristics were related to three categories of the variable of the Divorce Initiating Party (I, Both, H/She). The demographic characteristics included age of the divorced party, sex status, and time separated from one's spouse. The personality variables included the 11 Tennessee Self Concept Scale variables and the four factors of the Fisher Divorce Adjustment Scale.

The following findings and conclusions are reported:

1. There is a negative, significant correlation between the Tennessee Self Criticism (TSC) scores and the Divorce Initiating Party (DIP) scores. This indicates that participants with a healthy openness and a higher capacity for self-criticism tend to be the initiating party in the divorce procedure.

2. There is a positive, significant correlation between the Row 2 TSC scores and the DIP scores. This indicates that participants with a lower self-satisfaction score tend to be the initiating party in the divorce procedure.

3. There is a negative, significant correlation between the Fisher Divorce Adjustment Scale (FDAS) Symptoms-of-Grief Factor scores and the DIP scores. This indicates that participants with high grief scores tend to be the initiating party in the divorce procedure.

4. There is a negative, significant correlation between the FDAS Disentanglement of the Love-relationship Factor scores and the DIP scores. This indicates that participants with high disentanglement scores tend to be the initiating party in the divorce procedure.

5. There is a negative, significant correlation between the Age of the Divorced Party scores and the DIP scores. This indicates that participants who were older tend to be the initiating party in the divorce procedure.

6. The variable of the Age of the Divorced is making a significant unique contribution to the explanation of the DIP scores.

7. The variable of the FDAS Disentanglement of the Love-relationship Factor is making a significant unique contribution to the explanation of the DIP scores.

8. The variable of the FDAS Rebuilding Social Relationship Factor is making a significant unique contribution to the explanation of the DIP scores.

9. The set of 11 TSC Scales is not making a significant unique contribution to the explanation of the DIP scores.

ZWICK, THOMAS T. "An Investigation into the Affective Behavior of Students in the Environmental Education Program in School District No. 2, Billings, Montana." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

This study was conducted to determine changes in students' affective behavior toward environmental education and environmental values resulting from their participation in the "AH-NEI" outdoor study area. Affective behavior was assessed by using the Billings Environmental Attitude Assessment Instrument (BEAAI). Students' self assessed values as indicated on the BEAAI were correlated with their observed affective behavior toward these attitudes as recorded by teachers on the Checklist for Observed Affective Behavior (COAB). A Spearman Rho Coefficient of Correlation of these results was calculated to be .94.

The Likert statements of the BEAAI were constructed from randomly selected, affective objectives of the "AH-NEI" Curriculum Guide and based upon the Affective Domain Levels (Krathwohl, 1965). The sample was comprised of 160 fifth grade students enrolled in school District No. 2, Billings, Montana. Eight students were randomly selected from Title I (low socio-economic), and eighty were randomly selected from Non-Title I (high socio-economic) schools. Experimental and control groups were composed of one school from each socio-economic level. The designation of experimental or control was determined by a flip of a coin.

The changes in behavior between the experimental and control group were determined by a computer run student t-test and an analysis of variance on the mean gain attitude scores. Significant levels for the student t-test and the f-ratio were set at .05.

Data collected and analyzed in this study revealed the following:

1. Significant Findings exist between:

a. The mean gain attitude scores of students participating in the "AH-NEI" field experience and those not participating in the field experience. The group participating in the field experience showed a more positive change.

b. The mean gain attitude scores of students of high and low socio-economic schools participating in the "AH-NEI" field experience. The student from low socio-economic schools showed a more positive change.

c. The mean gain attitude scores between males from high and low socio-economic schools participating in the "AH-NEI" field experience. The low socio-economic showed a more positive change.

d. The mean gain attitude scores between males of high socio-economic and females of low socio-economic schools, participating in the "AH-NEI" field experience. The females of low socio-economic schools showed a more positive change.

2. Non-Significant Findings exist between:

a. Mean gain attitude scores of males and females of mixed socio-economic backgrounds participating in the "AH-NEI" field experience.

b. Mean gain attitude scores of females of high and low socio-economic schools participating in the "AH-NEI" field experience.

c. Mean gain attitude scores of males from low and females from high socio-economic schools participating in the "AH-NEI" field experience.

d. Mean gain attitude scores of males and females from low socio-economic schools participating in the "AH-NEI" field experience.

e. Mean gain attitude scores of males and females from high socio-economic schools participating in the "AH-NEI" field experience.

## Special Education

BLACKHURST, ERIC W. "Discrepancy Evaluation of a Learning Disabilities Teacher Preparation Program" Published Doctor of Education dissertation, University of Northern Colorado, 1977.

The main purpose of this study was to evaluate the learning disabilities teacher preparation program at the University of Northern

Colorado utilizing the Discrepancy Evaluation Model. The subjects in this study were three different populations: 1) University faculty within the Learning Disabilities Department, University of Northern Colorado; 2) Cooperating teachers responsible for the supervision of practicum students; and 3) Practicum students enrolled in full time practicum in a learning disabilities classroom.

There was a discrepancy between the standards of the University faculty and the cooperating teachers in the areas of assessment and remediation. There was not a discrepancy in the areas of methods and materials.

There was a discrepancy between the standards of the University faculty and the practicum students in the areas of assessment, materials, and remediation. There was not a discrepancy in the area of methods.

Discrepancies within the assessment component of the learning disabilities preparation program indicated a need for revision of course work. This could include increased emphasis on informal assessment, consolidation of assessment course work, and additional exposure to diagnostic procedures, instruments, and interpretation.

Within the methods area there was general agreement between faculty, cooperating teachers, and practicum students in the area of behavior modification techniques. It was perceived that students were well prepared in this area. However, there is an apparent need for additional preparation in the methodological areas of learning processes, language, and academics.

Perceptions of cooperating teachers and practicum students implied an increased exposure of practicum students to commercial and teacher made materials for teaching language and learning processes would be beneficial. It was generally agreed students need additional exposure to materials of all types.

The remediation area was rated by both cooperating teachers and practicum students generally lower than the University faculty. This seemed to imply students are not prepared as well as the University faculty desired. The data and subjective comments seemed to indicate a need for increased emphasis in the remedial techniques for academics, language, and learning processes. There was also an additional classroom experience in remedial methods.

CHILDS, RONALD ELKIN. "A Comparison of the Importance of Selected Competencies as Perceived by Teachers of Elementary Educable Mentally Retarded Students." Published Doctor of Education dissertation, University of Northern Colorado, 1978.

This study was conducted to further establish a line of communication between the university teacher training program and the classroom of the teacher by determining what competencies were considered important and unimportant by teachers of educable mentally retarded children and to find out if there was any difference between the perceived importance of certain competencies required of resource teachers and self-contained class teachers of the elementary educable mentally retarded child. The subjects for this study were 60 teachers of elementary educable mentally retarded children. Thirty-six teachers were resource room teachers and 24 teachers were self-contained class teachers.

A significant difference was found between the mean rank of the two groups on 33 of the 75 competencies included in the questionnaire. The self-contained class teachers rated each one of the competencies related to materials significantly higher than the resource teachers.

In addition, the self-contained class teachers had a significantly higher score on the competency domains relating to materials and professionalism. There was no significant difference on the domains relating to the mentally retarded child, the curriculum, or methods.

Seventy-three of the competencies received a mean ranking equal to the Important category, while the other two were designated as Very Important.

The following statements reflect only that which can be extracted from the data base. The implications drawn from these conclusions are followed by recommendations for trial action, hopefully to be monitored by empirical investigations.

1. Self-contained class teachers of EMR children perceived competencies related to materials as more important than resource teachers.

2. Self-contained class teachers of EMR children perceived competencies related to professionalism as more important than resource teachers.

3. Self-contained class teachers and resource teachers do not perceive the importance of competencies related to the retarded child, curriculum, or methods differently.

4. Teachers of EMR children collectively perceived most competencies related to the education of EMR children as Important in meeting the requirements of their job.

5. Teachers of EMR children collectively perceived very few competencies as Very Important in meeting the requirements of their jobs.

MANLEY, MICHAEL SCOTT. "The Effect of Funding Source on Rehabilitation Outcome of Spinal Cord Injured Patients." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

Measurement of rehabilitation outcome has become increasingly important in the field of rehabilitation. Obtaining a measure of rehabilitation outcome in a rehabilitation facility provides a measure for analyzing the quality of rehabilitation care and identifies specific areas of services that may be needed. The purpose of this investigation was to determine the effect of insurance sponsorship on rehabilitation outcome of traumatically injured spinal cord patients at Craig Hospital, Rocky Mountain Regional Spinal Cord Injury Center.

Initial hospitalization costs were significantly higher than hospitalization cost incurred for either reevaluation. This would be expected as the initial hospitalization period is considerably longer. There was also a statistically significant difference between the three subgroups of paraplegic patients during their first hospitalization period and the first re-evaluation period. The differences in cost were attributed to the different time periods and subjects within the Worker's Compensation group and the private insurance group received their gait training.

Both subgroups of subjects demonstrated statistically significant improvements in functional outcome for the time period between admission and discharge. There was also a significant interaction effect between the Worker's Compensation group and the private insurance group of paraplegics at the time of discharge and at the time of the first re-evaluation.

There were statistically significant differences in the ESCROW scores between both subgroups of subjects. Further analysis indicated that these differences were attributed to one item on the ESCROW Index that dealt with financial resources. When this item was removed, the statistical difference between the groups was eliminated.

The overall rehabilitation outcome measures utilized in this study indicate that the rehabilitation program at Craig Hospital is providing a quality rehabilitation program when compared to other national spinal cord injury centers.

The individual rehabilitation outcome measures indicate that there were no statistical significant differences between the three funding source groups in any of the rehabilitation outcome measures that could not be accounted for by either the rehabilitation treatment program or the instruments that were utilized in the study.

PETRANGELO, GEORGE JOSEPH. "Attitudes of Non-Disabled College Students Toward Their Disabled Classmates as a Function of Educational Contact." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

Attitudes toward disabled college students were measured by the Attitude Toward Disabled Persons Scale (ATDP) (Yuker, et al, 1960). One hundred seventy-six non-disabled undergraduates comprising four groups were given the ATDP Scale at the beginning and end of Winter and Spring Quarters, 1976, at the University of Northern Colorado. Three of the groups were selected on the basis of their major emphasis areas, and their inclusion into already established classes. The fourth group served as the comparison group because of its unique one-to-one ratio of disabled to non-disabled students. The fourth group included a variety of majors, while the first, second, and third groups majored in business, rehabilitation, and special education, respectively.

Results indicated no significant differences on pre-test means between groups. Post-test means, however, did indicate significant differences. The Scheffe analysis showed rehabilitation and mixed groups significantly higher than the business group. Business majors scored lower than all other groups and decreased slightly from pre- to post-test. Rehabilitation and mixed groups scored highest, and showed the greatest positive change from pre- to post-test. Special education majors did not score significantly in the group comparison, and showed only a slight increase in scores from pre- to post-test. Special education majors did not.

Findings suggest increased educational contact between disabled and non-disabled students will increase positive attitudes toward the disabled students. Implications for increased positive at

Findings suggest increased educational contact between disabled and non-disabled students will increase positive attitudes toward the disabled students. Implications for increased positive attitudes toward disabled persons among students within helping professions would be structured curriculum changes to allow more contact and interaction between disabled and non-disabled students. Early and increased educational contact through practicums and field experiences would also allow students not suited for careers in the helping professions to change professional emphasis early in their programs. Increased educational contact could enhance student interaction, interpersonal skills, and overall effectiveness as professionals.

REED, VICKI A. "A Validation Study of the Efficacy of an Auto-tutorial Manual in Teaching Anatomy and Physiology of Speech and Hearing at the University of Northern Colorado." Published Doctor of Education dissertation, University of Northern Colorado, 1978.

This study sought to validate the effectiveness of the use of an auto-tutorial manual as a supplemental programmed learning activity in the anatomy and physiology of speech and hearing course at the University of Northern Colorado.

The anatomy and physiology of speech and hearing course at the University of Northern Colorado was taught four times. Two of the classes were taught without the students using the manual, and two of the classes were taught with the students using the manual. Two instructors, an experienced instructor who had previously taught the course for five years and an inexperienced instructor who had never previously taught the course, participated in the study. Each instructor taught both a class in which the students used and did not use the manual. Students in the four classes were pretested and posttested, and the differences between the test scores were used to measure the effectiveness of the manual.

Analysis of the data revealed there was no statistically significant difference between students' gains from pre- to posttest examination scores when they used or did not use the manual. Further, there was no statistically significant difference between students' gains from pre- to posttest examination scores in either the classes using or not using the manual when these classes were taught by either the experienced or inexperienced instructor.

Additional data analysis not related to the statement of the problem indicated a statistically significant difference between students' gains from pre- to posttest examination scores in the classes taught by the experienced instructor and the classes taught by the inexperienced instructor, irrespective of whether the manual was used or not. The difference favored the students' gains in the classes taught by the experienced instructor.

Further, tests of significance among the variances of the differences between students' pre- and posttest examination scores for the four classes indicated a statistically significant difference between the variances of the class in which the inexperienced instructor did not use the manual and the class in which the same instructor used the manual. The variance of the class in which the inexperienced instructor used the manual was significantly less than the variance of the class in which the inexperienced instructor did not use the manual. A difference between these two variances led to a violation of the assumption of equal variances underlying the use of analysis of covariance.

RIGGAR, THEODORE F. "Evaluation of the Content and Effectiveness of a Rehabilitation Counselor Education Program." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

The objective of this study was to determine the quality and relevance of the University of Northern Colorado Rehabilitation Counselor Education program content and the overall effectiveness of the RCE program in the rehabilitation field.

The results found that 89.7 percent of the M.A. graduates are employed in rehabilitation or rehabilitation-related settings. For Ed.D. graduates the total was 91.1 percent.

Sixty-two percent of the M.A. graduates were making \$13,000-\$14,999 or more per year. Twenty-one point two percent - \$17,000-\$18,999 or more per year, and 6 percent - \$21,000 or more per year. The Ed.D. respondents reported that 71 percent were making over \$21,000.

For M.A.'s employment settings, 37 percent were in rehabilitation agencies and 10.6 percent in mental health centers. Doctoral graduates were found in institutes of higher education 61 percent of the time.

Forty-six point nine percent of the M.A. graduates were associated with the National Rehabilitation Association and 11.5 percent with the

American Personnel and Guidance Association. For Ed.D. graduates 68.3 percent were in the National Rehabilitation Association and 39 percent in the American Personnel and Guidance Association. Fifty-eight point five percent of the Ed.D. graduates have published professionally while only 1.7 percent of the M.A. graduates have done so.

Very Satisfied was reported by 53 percent of the M.A. graduates and 63.4 percent of the Ed.D. graduates concerning satisfaction with their employment. Only 2.6 percent of the M.A. and 4.9 percent of the Ed.D. graduates indicated that they were Very Unsatisfied with their employment.

Concerning the content courses the M.A. graduates reported that three of the five highest rated courses in categories - Adequacy of Training and Related to Employment - are the same. For Ed.D. graduates two of the five highest ranked in each are identical.

RINGLABEN, RAVIC P. "An Assessment of Regular Education and Special Education Degree Students' Knowledge of Handicapped Children Due Process and Placement Requirements." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

The purpose of this study was to gather information regarding the extent of knowledge attained by special and regular education majors at the University of Northern Colorado. The information gathered related to the students' degree of knowledge about special education legislation and its relationship to due process and individual programs for handicapped children. An instrument was developed to assess the students' knowledge of special education legislation, particularly in the areas of due process and individual programs for handicapped children. The study was designed to answer the following research questions:

1. Will special education degree students perform significantly ( $p < .05$ ) better than non-special education degree students on the instrument?
2. Will students with teaching experience perform significantly ( $p < .05$ ) better than students without teaching experience on the instrument?
3. Will students with special education teaching experience perform significantly ( $p < .05$ ) better than students without special education teaching experience on the instrument?
4. Will special education degree students with special education teaching experience perform significantly ( $p < .05$ ) better than special education degree students without special education teaching experience on the instrument?
5. Will students who have participated in a special education staffing perform significantly ( $p < .05$ ) better than students who have not participated in a special education staffing on the instrument?
6. Will students who have discussed or read about special education legislation in a college class perform significantly ( $p < .05$ ) better than those who have not discussed or read about special education legislation in a college class on the instrument?
7. Will students who have discussed or read about special education legislation on their own perform significantly ( $p < .05$ ) better than students who have not discussed or read about special education legislation on their own on the instrument?
8. Will there be a relationship between the student's self-rating regarding his/her knowledge of special education legislation and the student's performance on the instrument?

The findings of the study indicated the following groups performed significantly ( $p < .05$ ) higher than on the instrument:

- a. special education when compared to non-special education degree students.
- b. students with teaching experience when compared to students without teaching experience.
- c. students with teaching experience in special education compared to students with no teaching experience in special education.
- d. students who participated as compared to students who had not participated in a special education staffing.
- e. students who had as compared to students who had not discussed or read about special education legislation on their own.

Greater predictability of the dependent variable occurred when the independent variables were considered in combination rather than separately.

SHEINKER, ALAN. "A Comparative Study of the Creative Abilities of Normal and Learning Disabled Children." Published Doctor of Education dissertation, University of Northern Colorado, 1978.

The purpose of this study was to determine if learning disabled children are different in creative abilities from the normal population

as measured by the Torrance Tests of Creative Thinking and Sounds and Images. A subpurpose of this study related to whether there are differences in the creative abilities of learning disabled children of average intelligence as compared to learning disabled children with above average intelligence.

The findings from statistical analysis of the data permitted the following conclusions about the population studied:

1. There was no significant differences in fluency as measured by the Torrance Tests of Creative Thinking between the normal and learning disabled populations.
2. The normal population was more flexible, original, and elaborate than the learning disabled population as measured by the Torrance Tests of Creative Thinking.
3. The normal population was more original than the learning disabled population as measured by Sounds and Images.
4. Learning disabled children of above average intelligence (IQ of 111 and above) were more original than learning disabled children of average intelligence (IQ of 90-110) as measured by Sounds and Images.
5. There was no significant correlation between originality as measured by Sounds and Images and the Torrance Tests of Creative Thinking for learning disabled children of average intelligence (IQ of 90-110).
6. There was no significant correlation between originality as measured by Sounds and Images and the Torrance Tests of Creative Thinking for learning disabled children of above average intelligence (IQ of 111 and above).

ZONGOLOWICZ, HELEN M. "Evaluative Responses of Trainable Mentally Retarded Persons." Published Doctor of Education dissertation, University of Northern Colorado, 1977.

The main purpose of this study was to examine evaluative response

patterns in persons classified as trainable mentally retarded as measured by sets of pictures depicting good, bad, and neutral actions. A related purpose of this study was to determine which variables (sex, chronological age, mental age, intelligence quotient, years in school, educational setting, and expressive language) make a unique contribution to the performance of the trainable mentally retarded person on evaluative responses as measured by sets of multiple-choice pictures depicting good, bad, and neutral actions.

The binomial distribution was used to ascertain whether a given person scored better than chance on the test of evaluative responses. Multiple linear regression was used to measure the unique contribution of the variables of sex, chronological age, mental age, intelligence quotient, years in school, educational setting, and expressive language.

The findings from the statistical data are as follows:

1. A person who scored eight or more correct evaluative responses performed significantly better than chance at the .05 level. Of the 59 subjects, 42 subjects--16 males and 26 females--scored better than chance at the .05 level.
2. The variable of sex had a significant effect on correct evaluative responses at the .01 level. The males did not score higher than the females on any individual picture.
3. The variable of mental age had a significant effect on correct evaluative responses at the .05 level.
4. The predictor variables of chronological age, intelligence quotient, years in school, educational setting, and expressive language did not show significant predictive value on the selection of correct evaluative responses.